Railway Age

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Alphabetical Index to Advertisements, Page 5

Classified Directory of Advertisers, Page 6

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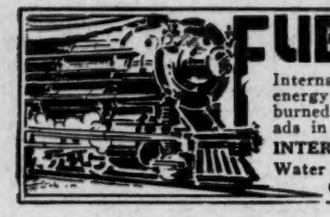
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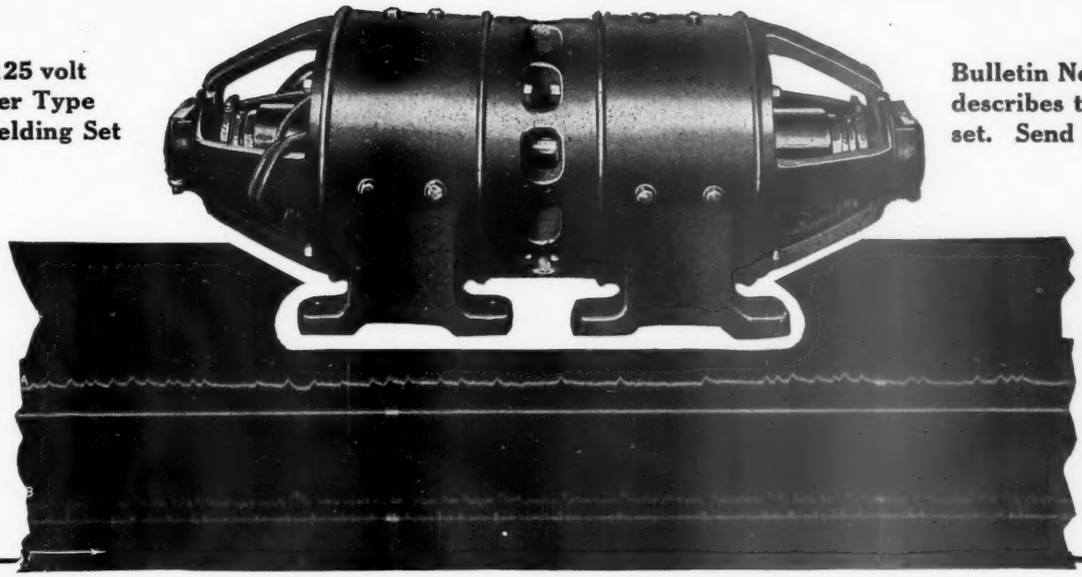

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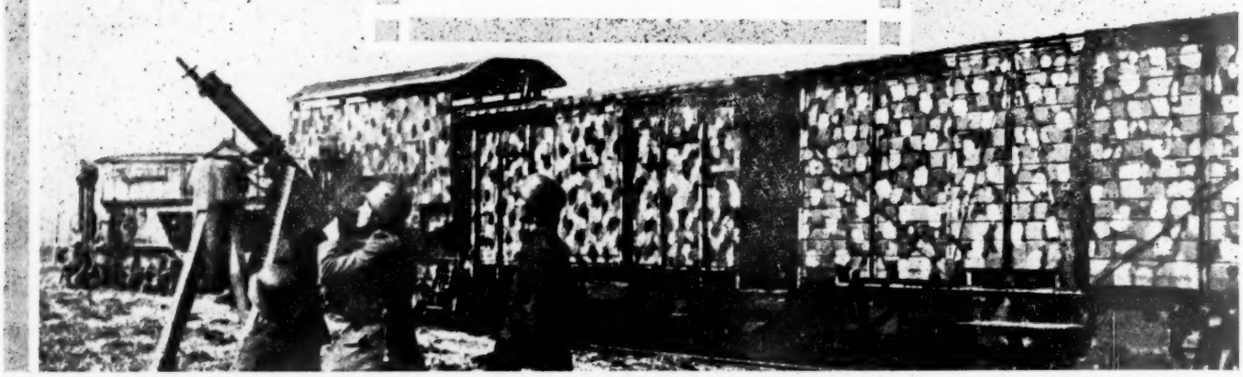
Vol. 65 October 25, 1918 No. 17



Something Extreme in Camouflage

This issue of the RAILWAY AGE reaches its readers late owing to a general strike of the printing pressmen and feeders in New York City.

Contents

EDITORIALS

Railway Earnings and Expenses in August 723
Pay for Supervision and You Will Get It 723
Investigating Old Bridges 723
Patriotism as an Aid to Production 724
Southern Railway 724

GENERAL ARTICLES

Forest Fires Take Heavy Toll in Lives and Property 726
Cost of Locomotive Fuel in 1917 728
The Mechanical Department Supervision Problem 729
Government Controls Timber Treating Industry 731

GENERAL ARTICLES—Continued

Orders of Regional Directors 732
Convention of the Maintenance of Way Painters 733
Doings of the United States Railroad Administration 735
$164,992,150 Subscribed by Railway Men 741
Investigating Old Bridges for Heavier Loading 743
Clearance and Weight Diagrams for Standard Locomotives 745
Joint Conference on Grain Handling and Weighing 747
Bad Order Car Situation 748
"The Railroad Bureau for Brickbats and Bouquets" 749

GENERAL NEWS SECTION 753

Alphabetical Index to Advertisements, page 5. Directory of Advertisers, page 6.

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EDITORIAL

Railway Age

Railway Earnings and Expenses in August

The most outstanding figures in the August statistics of railway earnings and expenses are those showing the increase in operating expenses and the decline of net operating income as compared with those reported for July, 1918. In commenting (issue of September 27) on the July statistics, we remarked that while they showed an *apparent* increase of only $79,000,000 in operating expenses over July, 1917, the real increase was much greater, since not all the advances in wages which had been authorized had been charged with the July accounts. The statistics for August come much nearer disclosing the true situation. The increase of total earnings in July (as compared with July, 1917) was $120,000,000; the increase of operating expenses (as *reported*) $79,000,000; and the increase of net operating income, $40,000,000. The increase of total earnings in August (over August, 1917) was $136,500,000; the increase of operating expenses $112,000,000 (or $33,000,000 greater than the increase reported for July), and the increase of net operating income only $26,000,000 (or $14,000,000 less than in July). To summarize, while the increase of total earnings in August was $16,500,000 greater than in July, the increase of net operating income was $14,000,000 less than in July, chiefly because more of the wage advances were taken account of in August than in July. While the increase of operating expenses reported for August was $112,000,000, everybody familiar with the underlying facts knows that further increases of expenses are still to be expected. As things are now going, it is but a matter of months until the increases of expenses will completely absorb the increases of revenues caused by the advances in freight and passenger rates. We see no reason for withdrawing the remark with which we concluded our comments on the July statistics, viz: "It would appear that one of the main things now needed on the railways is a tremendous drive to keep down operating expenses."

Pay for Supervision and You Will Get It

At a meeting of the New York Railroad Club last week, Frank McManamy, assistant director, Division of Operation, United States Railroad Administration, presented a paper on supervision problem in the mechanical department, which is abstracted elsewhere in this issue. Mr. McManamy directed attention to the great need for increased and improved supervision. He said nothing about the salaries that should be paid the supervising officers, but without doubt that is the key to the whole situation. The Railroad Administration has been very generous with the workmen, both in the car and locomotive departments, but apparently has failed to recognize the importance of keeping the supervising forces satisfied as well as the workmen. Many cases have been reported of gross inequalities between the compensation received by foremen and other supervising officers of higher standing and the men that work under them. In many instances these men have been kept from returning to the ranks where they could earn more money, by appeals to their patriotism, but it is unfair to ask them to sacrifice while their subordinates are enjoying the high wages. With the removal of the incentive for production by the reduction in piecework, it is necessary for these supervising officers to double their efforts in getting output. It is no exaggeration to state that the output per man, in the car department particularly, has decreased 25 per cent since the incentive for production by piece work has been removed, and that under the 58 cent hourly rate the men are getting from 65 per cent to 70 per cent more for the work actually performed than before the new scale of wages went into effect. The work of the supervising forces has also been increased, as pointed out by Mr. McManamy, due to the dilution of labor. The new employees, many of them inefficient, joining the mechanical department forces of the railroad must be educated in the work before their production will be satisfactory. This requires greater efforts from the supervising forces. It is within the power of the Railroad Administration to obtain this necessary increase in supervision. Treat these men fairly; treat them as the workmen have been treated, and the greatest co-operation will result. Make the position of a supervising officer attractive to the thousands of able men in the ranks and there will be no trouble in obtaining competent men for this work.

Investigating Old Bridges

Never in the history of American railroads was the necessity for continuing old bridges in service as imperative as it is at present. New bridges are to be had only through the commandeering of material and labor sorely needed by other essential undertakings, while the disturbances to train operation incident to reconstruction constitute an ill-timed interference with war traffic. For this reason the investigation of any bridge for increased train loading should be so accurate that no wasteful factor of uncertainty need be introduced in making the final decision. Such analyses, if carefully made, are tedious and as a rule, require more time than is generally available when a hurried call is made for a ruling on some new locomotive. In view of the importance of this matter at the present time, when questions as to new loadings come up from day to day, the presentation on another page of this issue of a method of investigating old bridges is most opportune. Briefly the process provides that the load-carrying capacity of the bridge and the bridge-stressing capacity of the locomotive or train are each to be expressed in terms of some common standard of train loading such as the well known Cooper series. With both the structure and the load thus "classified," a ruling as to the operation of the load over the structure is a matter of simple comparison. The advantage of this system is that the tedious stress calculations for the structure are made but once—for the purpose of determining its "classification"—whereupon the results of these calculations are immediately available for the consideration of any locomotive loading. For the same reason the detailed moment and shear computations for the locomotive, once made, can be applied to all bridges. The computations for the bridge may be made at any time when the press of more urgent matters permits and, as explained in this paper, the manipulations by which these computations are used in making comparisons with given locomotive loadings, or in considering modified stresses, reduced speeds or other variations, are a matter of simple formulae requiring only a limited time. Notwithstanding this, the same degree of accuracy is assured as if a complete independent investiga-

tion had been made of the special load in question. The method is far from new, having been put to practical use for over ten years. In view of the present importance of this matter, its more extended application is a subject worthy of serious study.

Patriotism as an Aid to Production

TO JUDGE the average output of a class of workers from statistics is a difficult matter. Men who are able to make reliable estimates seem generally to hold the opinion that the production per man has decreased very markedly during the past three years and has even fallen off to a noticeable extent since this country entered the war. The reduction of output has affected railroads as well as manufacturing industries and foremen and officers have found it a hard matter to remedy.

Among the methods suggested for overcoming this labor slacking is the placing of returned soldiers in the shops. Whether this is practicable or not remains to be seen. It is certain, however, that the idea back of the suggestion is worth considering. Surely there is no class of workers that would call a strike at this time, if by so doing they would impede the flow of the stream of munitions and supplies moving to our boys in France. The *individual* worker evades the responsibility which the *class* of workers cannot escape. If the individual could be made to realize that unless he works every day and produces to his utmost, he is not doing his part in helping out the boys in khaki, there would be less shirkers and fewer habitual absentees.

In this connection, it is interesting to note the results of a voluntary movement among the railroad employees at Centralia, Ill. Some time ago the employees at this point formed an organization which was named the Illinois Central Employees Patriotic Association. In purpose it was purely a patriotic organization. The officers were all elected from the ranks of the employees and the expenses were borne by individual subscriptions. In August the association held a rally and flag raising to stimulate interest in the Fourth Liberty Loan. The Centralia chapter of the Red Cross and the State Council of Defense were represented and the total attendance at the meeting was about 3,000. Two of the features of the program were addresses by the district fuel supervisor, who spoke to the railroad men and miners present on the fuel problem, and by a returned Canadian soldier who made an appeal for increased production. At the conclusion of the addresses, the men all pledged themselves to do everything in their power to increase the output and to give their superior officers the fullest co-operation to help bring the war to a speedy conclusion.

The effect of this meeting has been felt by the men at Centralia. One of the railroad officers at that point stated recently that since the meeting his department has been turning out more work than it did before the war with the same number of men. There has also been a noticeable change in the spirit with which the workmen go about their tasks. While the results of the movement are gratifying, they are not surprising. The object which is uppermost in the mind of every American is the winning of the war and it is only natural that an appeal for support to help win the war should bring the increased output which wage advances have failed to secure. Organizations similar to that formed at Centralia should be encouraged by railroad officers. Where such associations are not feasible, occasional mass meetings with speeches by returned soldiers can be made to serve a similar purpose. The motive of patriotism is the strongest force in the nation today. If that power can be used as an aid to production, there will be no more labor slacking for the period of the war.

Southern Railway

THE SOUTHERN RAILWAY, has of necessity, changed its fiscal period from the year ending June 30 to the calendar year, and a report has just been issued covering the six months, June 30, 1917, to December 31, 1917, and the calendar year 1917. There is no extended comment by President Fairfax Harrison on the work of the year, and this is a distinct loss to students of contemporary railroad history and science. In the five years since Mr. Harrison has been president of the Southern his letters of transmittal with the company's annual reports have been real contributions to economic literature. Mr. Harrison was chairman of the Railroad's War Board in Washington up to the time the government assumed control and had an immense amount of work and responsibility besides that of the management of the Southern Railway.

The showing made in the fiscal year ended June 30, 1917, was excellent and the Southern was actually able to carry a part of the gain in gross revenue through to net. Total operating revenues in the calendar year 1917 amounted to $90,717,000, an increase over 1916 of $15,162,000. Operating expenses were $11,089,000 more in 1917 than in 1916; taxes increased by over a million, and interest and rentals by over half a million. Net income available for dividends amounted to $14,037,000 in 1917, an increase of $2,513,000 over 1916.

The Southern, unlike the eastern trunk lines, has a very large margin of capacity over and above the work that most of its mileage has ever been called upon to handle, although this is not true of certain main lines. A large increase in both freight and passenger business could be handled without the extraordinary expense resulting from congestion, but, making full allowance for this fact, a gain of two and a half million dollars in net available for dividends is a remarkably good showing.

The increase in cost of labor and materials was probably as great on the Southern Railway as on any large system in the country. Fuel for train locomotives cost $6,715,000 in 1917, comparing with $3,450,000 in 1916. Furthermore, the fuel received was probably of a considerably poorer quality, the average miles run per ton of coal being 11.67 in 1917 and 12.84 in 1916. The total tonnage of coal consumed increased by about 14 per cent, while the cost of fuel for train locomotives increased nearly 100 per cent and for yard locomotives increased much more than 100 per cent.

The total tonnage of freight carried in 1917 was 37,063,000 and in 1916, 32,789,000. Of the total tonnage 40.86 per cent was products of mines in 1917 and 41.79 per cent in 1916; 18.01 per cent products of forests in 1917 and 16.46 per cent in 1916; and 30.02 per cent manufactures in 1917 and 29.47 per cent in 1916. It will be noted, therefore, that the increase in heavy loading commodities was not proportionately as great as the commodities that ordinarily move in smaller car load lots. Nevertheless, the average loading per loaded car was 22.37 in 1917 and 20.23 in 1916, an increase of 10.58 per cent. The average freight train load was 467 tons in 1917 as against 452 tons in 1916, an increase of over three per cent. The increase in train loading was accomplished despite the fact that traffic was not as well balanced in 1917 as in 1916. The percentage of loaded cars in each train was 69.82 in 1917 as against 72.49 in 1916.

The Southern carried its passengers with a considerably less expenditure of train miles per hundred passengers. The total number of passengers carried one mile in 1917 was 1,113,000,000, an increase of 37 per cent over 1916. Passenger train mileage was 16,018,000 in 1917, an increase of only half of one per cent over 1916. The average number

of passengers per train for the year 1917 was 66.57 as against 42.49 for the year 1916. The movement of drafted men and of troops presumably in part accounts for this showing.

The expenditures for maintenance of way were about the same in 1917 as in 1916; totaling $9,245,000 last year and $9,781,000 in the previous year. There was a large decrease in the amount spent for bridges, trestles and culverts and a considerable decrease in the amount spent for ties. The total expenditures for additions and betterments to road amounted to $10,569,000 in 1917, comparing with $6,811,000 in 1916. It is rather interesting to note that in 1917 $2,108,000 was spent for additions and betterments to bridges, trestles and culverts as against $1,218,000 spent in 1916. Very often larger expenditures on additions and betterments to bridges, etc., necessitated also larger charges to maintenance for this account, but this was not the case with the Southern in 1917.

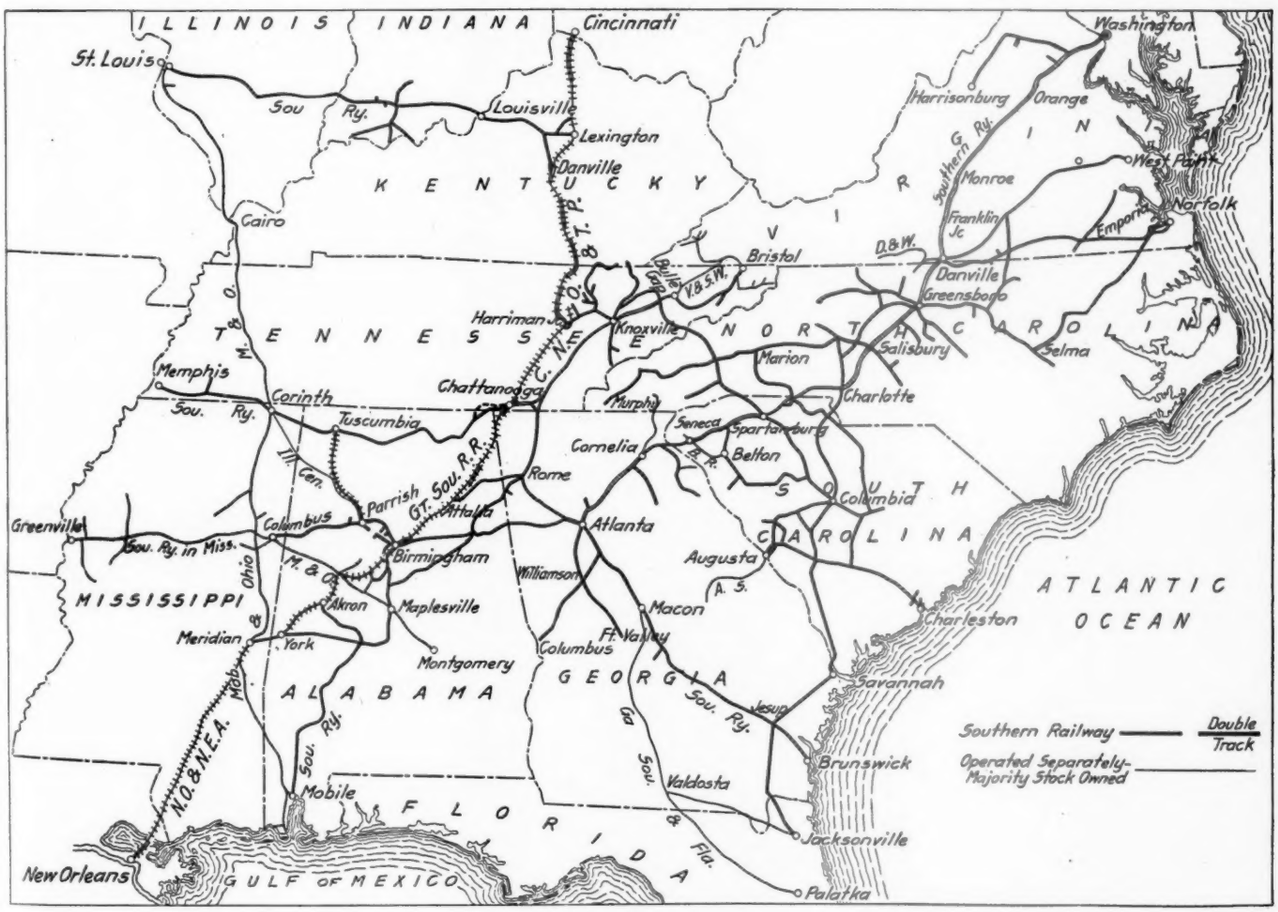
A total of $7,543,000 was spent for additions to equipment in 1917. In 1916 only $717,000 was spent for additions to equipment. Maintenance of equipment in 1917 cost $14,656,000 and in 1916 $11,612,000. The expenditures for repairs, exclusive of retirements and depreciation per unit of equipment, were as follows:

	1917	1916
Locomotives	$2,997	$2,523
Passenger train cars	842	738
Freight train cars	107	83

In 1917 the company resumed the payment of dividends on its preferred stock at the regular rate of five per cent per year, paying a dividend of 2½ per cent in November, 1917, and reserving from the income for the six months, June 1 to December 31, 1917, $1,500,000, representing the 2½ per cent dividend on the preferred stock payable in April, 1918. This resumption of dividends was apparently entirely justifiable and gave to Southern preferred stockholders only their due. During 1915 and 1916, these stockholders had foregone any return on their investment, thus permitting the company to pull through the trying period at the beginning of the European war in sound condition. On December 31, 1917, the company had $7,445,000 cash on hand and only a nominal amount—$455,000—loans and bills payable.

In the following table are given the principal figures for the operation of the Southern Railway for the year 1917 as compared with 1916:

	1917	1916
Average mileage operated	6,983	6,979
Freight revenues	$58,450,039	$50,976,995
Passenger revenues	24,303,183	17,637,413
Total operating revenues	90,716,569	75,554,652
Maintenance of way and structures	9,244,833	9,719,141
Maintenance of equipment	14,656,481	11,357,614
Traffic expenses	1,996,342	1,984,382
Transportation expenses	31,797,038	23,804,088
General expenses	626,048	468,242
Total operating expenses	60,113,598	49,024,967
Taxes	4,143,861	3,096,724
Operating income	26,429,962	23,399,393
Gross income	29,810,162	26,749,851
Net income	14,037,415	11,524,196
Dividends	1,500,000	.....
Surplus	12,417,205	11,324,664



The Southern Railway

Forest Fires Take Heavy Toll in Lives and Property

Railroads Unremitting in Relief Work During Conflagration Which Swept Northeastern Minnesota

THE RAILROADS not only suffered great damage to their property but also distinguished themselves in relief work during the forest fires which swept northeastern Minnesota a week ago. In general the fires commenced on October 11 and on the following day got beyond the control of the inhabitants and were spread at a rapid rate by a fierce gale. The conflagration started at points about 75 miles west and southwest of Duluth and covered the entire territory between those points and the head of the lakes. Many towns were wiped out and the fact that a number of others escaped serious damage may be attributed to some of the freak happenings which occur at times during such catastrophes. The rescue work carried out by the railroads in the fire zone diminished to a large extent the loss in lives. In general, railway employees carried on relief work until compelled to leave the fire-swept territory to avoid being trapped.

The Remains of the Trestle Approach to the Interstate Bridge

The Northern Pacific incurred property damage estimated at $33,300 at Cloquet, $55,400 at Duluth, $4,600, at Moose Lake and $1,100 at Corona. Along the lines of the Great Northern one interlocking plant, one station, several section houses and a number of laborers' cottages were destroyed by the fire, but the greatest damage was to the Interstate bridge used by the Minneapolis, St. Paul & Sault Ste. Marie and the Great Northern between Superior, Wis., and Duluth, Minn. The Northern Pacific lost 65 freight cars and the Great Northern lost 5 at Cloquet and 15 outfit cars at Brevator just west of Cloquet. Many miles of telephone and telegraph lines were burned. On the Great Northern the damage to the track is estimated at $40,000 or $50,000, that to buildings between $25,000 and $30,000, and to the Interstate bridge about $90,000.

The last summer was one of the dryest experienced in Minnesota for a number of years. Very little rain had fallen for two months and the water holes and streams were drying up. A large number of settlers have been locating in this territory, who were engaged in clearing the land for farming purposes. The slashings from the cut-over timber land were generally burned and these fires evidently got beyond the control of the inhabitants. Bush fires were first noted by George S. Stewart, general superintendent of the Great Northern, while out on the line on October 10 and he then issued instructions to prepare for emergencies.

Location of the Fires

Serious fires first occurred east of Swan river, where a large number of new settlers, mostly Finns, had located. Other fires then appeared around Mirbat, 75 miles west of Duluth, and toward Cloquet, 41 miles west of Duluth. On the morning of October 12, a strong west wind came up, which developed into a gale by 4 p. m. At Superior it was so dark at that time that all the street lights were turned on. The air was full of dirt, smoke and ashes and was heavily charged with electricity while the sky was a blood red color.

The fires worked east along the Great Northern main line on the Mesabi division as far as Carleton, which is 34 miles west of Duluth. The first town of importance burned was Brookston which is located 57 miles west of Duluth. The town proper was destroyed. The Great Northern ore terminal is located at this point and there is also a coal and water station there. The coal shed, water tank, pump house, depot and one section house were saved at this point, largely through the efforts of an Italian section foreman, who has been with the company for many years. He kept the pump going throughout the fire and continually sprayed the buildings with water. He was the only person who remained in the town during the conflagration.

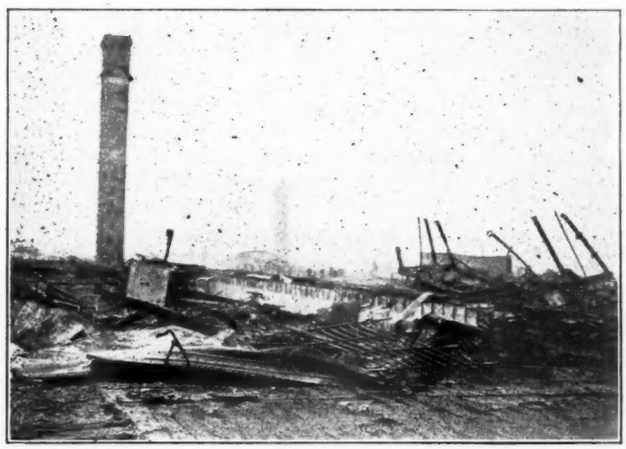
Another View of Interstate Bridge

The depot at Brevator, five miles east of Brookston, was destroyed and 15 outfit cars occupied by an extra gang were burned. No men were lost, as they fled ahead of the fire and were picked up by the relief train that moved the people out of Brookston and picked up the settlers around Draco. At Nagonat one section house was lost.

Cloquet, a thriving little city of 9,000 inhabitants, was practically wiped out by the fire. Only 9 dwellings remained, four of which were located near the west end and five in the east end of the town. About 60 per cent of all the lumber was destroyed. Of the five big sawmills two were left intact, one was partially destroyed and the other two were completely wiped out. A big paper mill, a toothpick factory and a box factory were saved, as by one of its freaks the fire passed on all sides of these factories. An important water tank at North End, just west of the Cloquet lumber yards, was saved largely through the efforts of the section foreman and five men. From 40,000,000 to 50,000,000 ft. of lumber was piled upon both sides of and close to the track. The heat from these

burning piles badly warped the rails and destroyed the track for a distance of 1¼ miles. A 42-ft. bridge was destroyed at this place. Everything between North End and Cloquet was burned, including the block signals, and telephone and telegraph lines.

At Scanlon, three miles from Cloquet, the fire destroyed 12 houses, but no railroad property was damaged nor was any railroad property east of there burned. Through the Iron Range country a great many smaller fires occurred, but no bridges or other railroad property were damaged on the Great Northern, as eight engines with water cars were employed to fight the fires as they started. At Kewattan two section houses were lost and miles of telegraph or telephone lines were blown



The Remains of Union Station at Cloquet

or burned down. By 9 p. m. on the evening of October 12, the wind was blowing 60 miles an hour. Several mine locations in the fire zone were damaged to a considerable extent.

The Interstate Bridge Destroyed

The Interstate bridge is used by the Great Northern and the Soo line, the street car company, and for vehicles and pedestrians between Duluth, Minn., and Superior, Wis. On the north side the approach to the fixed span consisted of 1,350 ft. of concrete and steel construction and 1,000 ft. of wood trestle running up to the fixed span. In addition, the bridge had two 600-ft. approaches from the street on the north side for the street car lines. There were two fixed spans, each 302 ft. long, and each weighing 1,000 tons, while the draw span was 498 ft. long and weighed 1,800 tons.

Fire brands from the fires burning in West Duluth were carried by the wind and set fire to the wood trestle at the point where it connected with the concrete and steel approach at Arthur avenue, and in a short time the trestle was destroyed, as were the two approaches from the street. A switch engine and about 40 men arrived at the bridge about 10 o'clock Saturday night, October 12; at 10:30 p. m. the city fire department had a hose working and at 11 a fire tug arrived; but the wind was blowing a gale which made it almost impossible to fight the fire. The fixed span on the north side connecting to the south end of the trestle work had the decking entirely destroyed, together with the rail fastenings, while the steel floor stringers underneath were bent out of shape and otherwise badly damaged. In addition to this holes were found burned through the decking throughout the entire length of the otherwise undamaged part of the structure.

By 8:30 the following morning 60 men and two derrick scows were on the way to clear away the debris. A large amount of material was on hand for use in repairs to the ore docks after the ore season closed, and this was used. Any material not on hand was gathered from other division points. The vacant ground to the west of the old approach will be used for the framing of the wood timbers used for rebuilding and these timbers will be towed out in the form of rafts by motor boats to be lifted in place by the derrick scows. Work will be carried on from both ends of the bridge. A railroad derrick will work from the south end of the steel and concrete approach, erecting bents.

In less than 40 hours after work was started, all the debris on the north side had been cleared away to the water's edge, the piling was cut on 21 bents and these were ready for the sills. It is expected to have the work completed and ready for traffic in 30 days, while one side of the bridge will be ready for use in about 15 days. The contract for the work on the bridge has been let to Peppard & Farlton, and 130 men, 10 teams, 2 derrick scows and a pile driver are at work on the reconstruction. With the exception of the ferries which ply occasionally between Superior and Duluth, and the railroad trains which operate over other bridges, all direct means of traffic is cut off between the two cities.

The Rescue Work

Only quick action on the part of the railroad officers succeeded in keeping down to a remarkably small figure the loss of life along the line in the fire-swept territory. When conditions began to look serious on Saturday, October 12, F. D. Kelsey, division superintendent of the Great Northern, issued instructions to all employees to keep a close check on conditions and to the train crews to pick up people from the towns where the fires were breaking out. Four relief trains were sent to the city of Cloquet on Saturday evening. The first train consisted of passenger equipment and left Cloquet for Superior at 9:15 p. m. with women and children. The other three trains with a total of 130 box cars left at intervals of about an hour, the last train with 54 cars leaving the burning city at 11:40 p. m. At this time the city was practically wiped out. Great credit is due the train and enginemen on the last train, as they moved it slowly ahead of the fire from the center of the city to the east end, keeping the whistle blowing almost continuously, and stopping at all road cross-

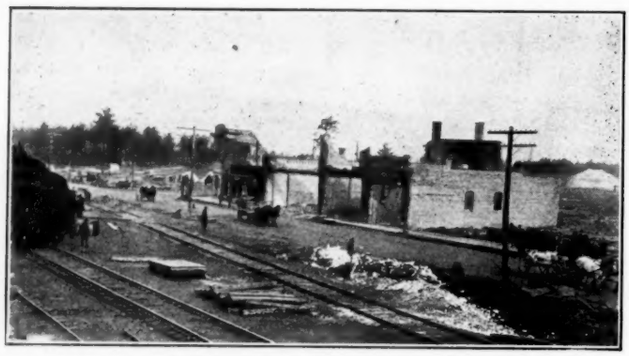
Track Just East of Cloquet Station

ings to wait for stragglers to show up. At this time the smoke and wind made it almost impossible to live outside, regardless of the fire.

Four trainmasters, four traveling engineers and the roadmasters were out on the line directing the work. Too much credit cannot be given all classes of employees for the excellent manner in which they performed their work, regardless of danger. The section foremen and their men fought the fires until practically surrounded. The agents and operators were some of the last to leave, sending in reports until the wires went down. The operator at Brookston, a woman, stayed in the station until a big store only 400 ft. away was destroyed. This was only one of a number of such cases. After the train and enginemen were out of touch with headquarters they acted on their own initiative and waited as

long as possible to pick up all stragglers. The bridge and building men also did excellent work. The chief despatcher, track despatchers, superintendents and general superintendents arranged to meet all contingencies when the brush fires first began to be reported in various localities. General Superintendent Stewart arranged to have the city authorities and principal business men of Superior meet the refugees, 4,700 of whom were brought in. On their arrival they were provided for in clubs, lodge rooms, churches, school houses and private homes.

The Northern Pacific also operated a number of relief



Moose Lake After the Fire

trains between the fire district and Duluth and Superior, rescuing a large number of people. On Sunday, October 13, a special relief train was run from St. Paul, Minn., to Moose Lake and through the balance of the fire district with physicians, nurses and state officials in charge of relief work. This train, in addition to the regular trains, moved the injured to St. Paul and Duluth, and picked up numbers of women and children who had taken refuge in swamps along the line and moved them to points where they could be taken care of. On October 14, a train leaving St. Paul for Duluth took several baggage cars of supplies to Moose Lake and on

Planing Mill and Wrecked Equipment East of Cloquet

the same day a supply of lumber and gasoline was transported from Duluth to Moose Lake. Each day since that time hay and oats have been moved to points in the burned district to feed the surviving cattle. In addition several companies of militia, fire apparatus and auto trucks were distributed throughout the fire zone.

Damage to Roadway

On the Great Northern miles of telephone and telegraph line were destroyed, two miles of track and of automatic signals, and an interlocking plant at Brookston, where the road branches off to the iron range, were destroyed as was also one small bridge and numerous buildings. On Sunday morning, October 13, three line gangs with material and extra gangs and eight cars of rail and ten cars of ties were moving to Cloquet. Because of the smoke and heat it was nearly noon before the actual repair work could be started.

The Grand Rapids-Superior line of the Great Northern handles a large amount of iron ore from the range and it is essential that no interruption to this service occur; otherwise lake boats would be held up at the docks. Traffic was interrupted by the fire for only 24 hours and at the end of that time the east-bound main line was opened up and trains were being operated by the staff system. Twenty-one hundred and eighty-eight cars of ore were on hand in the Allouez yards when the calamity occurred and nine boats were loaded at the Great Northern ore docks on Sunday, October 13. By getting the line opened so quickly, enough ore was brought in to the docks to supply the boats as fast as they tied up, occasioning no delay to this traffic. On Monday, October 14, shipping out of the American Head was impeded or totally stopped by the smoke from smouldering forests. In addition a dense fog helped to obscure large objects but a few yards distant. Government sirens ashore were directing the course of vessels in the fog and smoke trying to make the harbor.

Cost of Locomotive Fuel in 1917

THE COAL CONSUMED by locomotives of Class I railroads in 1917 cost approximately $115,000,000 more than it would have cost at the 1915 prices, according to a compilation made by the Bureau of Railway Economics from the annual reports of railways to the Interstate Commerce Commission. The average cost per ton, according to the bureau's figures, was $2.54 in 1917, an increase of $0.8364, or 49 per cent. over the average cost in 1915. The results of the study made by the bureau are given in the following tables:

CONSUMPTION OF FUEL BY LOCOMOTIVES

YEAR ENDED DECEMBER 31, 1917

(Railways having annual operating revenues above $1,000,000)

Item	United States	Eastern District	Southern District	Western District
ANTHRACITE COAL:				
Tons consumed.....	5,293,301	5,293,301	.....	.....
Aggregate cost.....	$14,010,125	$14,010,125	.....	.....
Average cost per ton	$2.64.68	$2.64.68	.....	.....
BITUMINOUS COAL:				
Tons consumed.....	132.491.627	61,551,592	24,064,797	46,875,238
Aggregate cost.....	$336,019,409	$165,663,004	$52,810.044	$117,546,361
Average cost per ton	$2.53.62	$2.69.14	$2.19.45	$2.50.76
TOTAL COAL:				
Tons consumed.....	137,784,928	66,844,893	24,064,797	46.875,238
Aggregate cost.....	$350,029,534	$179,673,129	$52,810,044	$117,546,361
Average cost per ton	$2.54.04	$2.68.79	$2.19.36	$2.50.76
FUEL OIL:				
Tons consumed.....	10,992,617	61,943	205,624	10,725,050
Aggregate cost.....	$42,336,915	$607,106	$852,414	$40,877,395
Average cost per ton	$3.85.14	$9.80.10	$4.14.55	$3.81.14
WOOD, COKE AND CHARCOAL:				
Tons consumed.....	371.186	132,423	24,145	214,618
Aggregate cost.....	$1.528,043	$538,976	$94,138	$894,929
Average cost per ton	$4.11.67	$4.07.01	$3.89.89	$4.16.99
ALL FUEL:				
Tons consumed.....	149,148,731	67,039,259	24,294,566	57,814,906
Aggregate cost.....	$393,894,492	$180,819,211	$53,756,596	$159.318,685
Average cost per ton	$2.64.10	$2.69.72	$2.21.27	$2.75.57
Mileage Represented..	230,454	56,844	42,852	130,758

AVERAGE COST PER TON

YEAR ENDED DECEMBER 31, 1917, COMPARED WITH YEAR ENDED JUNE 30, 1915

Item	United States	Eastern District	Southern District	Western District
COAL:				
Average cost per ton:				
1917	$2.54.04	$2.68.79	$2.19.36	$2.50.76
1915	$1.70.40	$1.63.52	$1.36.46	$1.97.94
Increase, 1917 over 1915:				
Amount	$0.83.64	$1.05.27	$0.82.90	$0.52.82
Per cent	49.0	64.4	60.8	26.7
ALL FUEL:				
Average cost per ton				
1917	$2.64.10	$2.69.72	$2.21.27	$2.75.57
1915	$1.77.38	$1.63.92	$1.36.76	$2.10.06
Increase, 1917 over 1915:				
Amount	$0.86.72	$1.05.80	$0.84.51	$0.65.51
Per cent	48.9	64.5	61.8	31.2

NOTE: Fuel oil reduced to equivalent in tons of coal on the basis of the experience of the reporting carrier; hard wood on the basis of 1½ cords, and soft wood 2 cords to the ton; charcoal on the basis of 100 bushels to the ton.

The Mechanical Department Supervision Problem*

The Dilution of the Quality of Labor Has Increased the Need of More and Better Supervision

By Frank McManamy
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THE IMPORTANCE or in fact the necessity of efficiency in the railroad organization cannot be overestimated and as stated by the director general in his report to the President, the efficiency of the railroads depends entirely upon the supply and condition of the motive power and the efficiency with which it is operated.

The supply of locomotives has never been such as to cause serious apprehension because with 18 per cent, which is approximately one locomotive in every six, out of service for repairs, which was the situation last winter, we could not well say that a shortage of locomotives existed. The important question, therefore, was to get the locomotives in shape to perform efficient service and maintain them in that condition. At the present time the big factor in this is the question of supervision of shops and shop work.

The Interstate Commerce Commission reports the gross revenues of all Class I railroads, that is railroads with annual operating revenues in excess of $1,000,000 for the year ended June, 1917, as $3,824,419,739. Of this amount, $633,543,697, or almost exactly one-sixth of the gross income, was expended for maintenance of equipment. It was exceeded by only one item—transportation. In view of the prevailing cost of labor and material this figure will be greatly exceeded in the current year.

Reports show that there are employed in the mechanical department of the railroads under Federal control, 393,000 persons, of whom 255,000 are in the locomotive department and 138,000 in the car department. These are the persons who make up the maintenance of equipment forces and the amount paid them for wages with the value of the material they use makes up the enormous sum under the caption "maintenance of equipment."

To insure efficient and economical handling of this labor and material, organization is required and the prime factor in any organization is supervision. Railroad forces, and particularly maintenance of equipment forces, have been subjected to heavy drain because of the war and this has resulted in dilution of the quality of labor. Because of this dilution supervision both in kind and in quantity, becomes even more important than heretofore. It is today the *big* problem in railroad operation.

Supervision to be effective must be adequate in quantity, therefore, the number of workmen under one officer must be such that the officer is in constant touch with his force. Persons who have studied military and industrial organizations state that one man can properly supervise not to exceed from 25 to 35 men, a figure much below that which is often used in railroad work which has been known to extend to nearly 100 men. The statements as to the number of men who can be properly supervised by one officer are based on studies made when conditions were normal. In view of the necessity for the intensive use of labor and material today, because of the demand for both, the figures stated are, I believe, too high.

Supervision to be effective, must be constant. The withdrawal of the foreman or supervising officer from his duties many times each day to answer summons from those in authority, the preparation of reports and routine office work which could be done in much less time by persons with clerical experience, the daily attendance of staff meetings which necessitates absence from usual duties for periods ranging from 30 minutes to two hours, are not conducive to efficient supervision.

Many supervisory positions have been permitted to become supervisory positions in name only. We find superintendents of shops, master mechanics, general foreman, roundhouse foreman and even men in positions of lesser responsibility, required to devote so much time to office work, to personally transmitting reports to superiors and to other work of like character, that they can devote little or no time to the direction of the active work, and by active work I mean the actual expenditure of the labor and material under their control.

Supervision to be effective must be respected, and this applies to those of higher as well as lower rank. The possession of proper title to indicate the character of services rendered which will command respect from those under his jurisdiction and consideration from those in other departments with whom he comes in contact, is a necessary advantage which should be given each supervising officer.

Active competition for supervisory positions should be encouraged by making such positions as attractive as possible and if this is done, it will result in securing the best material available, which is highly essential if the output in both grade and in quantity is to be kept up to the standard.

Supervision to be effective must be instructive. Some one has said that the principal reason for not getting the result we anticipated was because we failed to explain just what was wanted—a lack of understanding. To this cause may be laid many failures both of men and of plans. It is necessary, therefore, that instructions be complete, that they be concise, that they be understandable, and that—above all, they be workable.

The issuance of orders is the easiest thing in the world, but to issue a large number of orders is to insure their being disregarded. Voluminous instructions therefore should be carefully avoided. If this is done and the instructions issued are brief and are to the point, better observance may be expected; instructions alone, no matter how carefully prepared, are of little value without a proper follow-up or checking system to see that the instructions are observed and the work up to the required standard.

Supervision to be effective must be courageous. The quality of production comes from the top downward. We get from the average workman as good a job as we accept, no better. Supervision must maintain the accepted standards and this requires, in many cases, real courage, but it is necessary, and the supervising officer is the only means whereby this can be accomplished. With the conditions now existing the maintenance of high standards is necessary to the morale of the forces and to the preservation of proper discipline.

As previously stated, there are today in the locomotive department 255,000 employees, and in the car department 138,000 employees, a total of 393,000. There are approximately 20,000 more employees in the locomotive department today than there were a year ago and approximately 8,000 more in the car department than for this date last year. Added to this we are working more hours, many more hours, per week than we did a year ago. With the increase in force and the increase in man hours, we are not in all cases receiving the

*Abstract of a paper presented before the New York Railroad Club.

returns we should; I attribute this largely to inefficient supervision.

I have endeavored to point out some of the essential requirements of effective supervision but it must be more—it must be responsible, as authority and responsibility go hand in hand. We cannot separate them and if we confer adequate authority on an officer he must have sufficient confidence in his own ability and judgment to do the work required and assume the responsibility for it.

Since the government has assumed control of the railroads supervising officers have often made the statement that they did not know just what authority they had and in many instances when matters which have always been handled by certain officials have been put up to them their reply has been "I do not know whether I can handle this without instructions from Washington," and this has been given as an excuse for failure of almost all kinds.

Paragraph 1 of General Order No. 1, issued by the director general on December 29, 1917, reads as follows:

> All officers, agents and employees of such transportation systems may continue in the performance of their present regular duties, reporting to the same officers as heretofore and on the same terms of employment.

This in the absence of subsequent orders to the contrary, seems to me effectually to dispose of any doubt as to the authority of supervising officers and leaves the question of failure to properly supervise the work squarely up to the officer involved. What is wanted by the Railroad Administration is that each railroad officer or employee who remains in the service, who continues to perform the usual duties assigned to him will if possible do a little more work than he ever did before and do it a little better.

There can be no question as to the authority of railroad officers under government control to perform all of their usual duties and there has been no lack of support from the Railroad Administration when those duties were properly and diligently performed.

A discussion of the question of supervision would not be complete without considering co-operation in connection therewith, because I believe the real test of the supervising officer is his ability to obtain the co-operation of the men working under his direction. I sometimes feel, however, that the real meaning of the word "co-operation" is not always realized. Webster defines the word co-operation as "To operate together or jointly for a common object or a common end" and Gladden has well said "Men cannot co-operate successfully for any purpose if the sole bond between them is self-interest."

The extent to which the supervising officer can get his force to work together for a common object depends almost entirely upon his attitude towards the men and his interest in the work that is being done. The supervising officer who considers that his full duty has been performed when he has issued instructions covering the work to be done is not going to secure any great amount of co-operation. He must show the employee that he has a personal interest not only in the work but in the workman. They must know that in addition to passing out the work slips he is going to follow them to see that the work is promptly done and in a workmanlike manner. He should also encourage workmen by seeing that both material and tools are supplied to mechanics so that they may keep their machines in operation, for there is no one thing that goes further to discourage a good mechanic and curtail the output than to require him to shut down his machine while locating materials which should have been delivered by a laborer or to secure tools which a tool messenger should have delivered.

There is nothing that will keep a force of men at their best quite so well as the knowledge that the supervising officer is on the job, inspecting their work, both as to quality and quantity, and that good work will be noted and the workman given due credit, as surely as work that is not up to the standard will be corrected.

In addition to co-operation between employees and supervising officers we must also have co-operation between different departments if we are to get results out of our locomotive shops. The work must be co-ordinated so that time lost by one department in waiting for another is reduced to a minimum. To bring this about it is usually necessary for certain employees in one department to work overtime or to make an extra effort so that someone else is not waiting for the job they are doing and this is one of the times when co-operation between supervising officers and employees is of direct benefit because without it there is frequently objection on the part of the employees to work the necessary overtime to help someone else.

Absolute fairness in handling this is also necessary because if the employee loses confidence in the supervising officer's fairness in matters of this kind, objection to the overtime worked will usually result.

Co-operation between shops and roundhouses is extremely important and roundhouse jobs should be given preference and promptly handled, because in this way many locomotive hours may be saved.

Increased shop output due to closer co-operation and better supervision over the maintenance of power will avail us little without co-operation between the transportation and the mechanical departments with respect to the use of power.

The freight locomotive mileage for the period from January 1 to June 30, 1918, was 370,489,316. This mileage was made by 31,197 serviceable freight locomotives and represents an average daily mileage of 65.6 per locomotive. An increase of five miles per day for each freight locomotive will result in an increase of 7.62 per cent in our freight locomotive miles and would be the equivalent, measured by any standard, of 7.62 per cent increase in our freight locomotive stock. It would be equivalent to adding 2,377 locomotives to our present equipment. With three exceptions this exceeds the present number of locomotives on any railroad in the country. It is 962 locomotives more than the total number ordered by the Railroad Administration for their 1918 requirements and represents the entire production of our locomotive builders for five months.

Figuring the average cost of a locomotive at $60,000, it represents a capital expenditure of $142,620,000. With the average mileage per serviceable freight locomotive down to 65.6 is there any conceivable plan by which the expenditure of this vast sum of money can be so easily avoided as by increasing our existing freight locomotive mileage by five per day, particularly when we compare the average performance with the best mileage made by any Class I railroad during that period, which is 101.9? This was made by one of the coal carrying roads with heavy traffic and numerous branch lines and mine runs and therefore cannot be said to have been made under exceptionally favorable conditions. As a matter of fact, there are few railroads where the average miles per day cannot be increased twice five by properly utilizing the time serviceable locomotives are unnecessarily delayed at terminals.

In addition to the saving above referred to this will also reduce the amount of terminal overtime paid and the number of crews which must be relieved under the Hours of Service Law. Without this co-operation on the part of the transportation department in the use of locomotives the very best efforts on the part of the builders and the repair shops will not be able to supply the demand, because there has never been a supply of anything so unlimited that if wastefully used it would not at some time or other lead to a shortage.

The freight car miles for the first six months in 1918 were more than one hundred ninety billion. This mileage was made by 2,410,907 freight cars and represents an average of 24.3 miles per car each day. If we can increase this figure but two miles per day it will have the effect of increasing the car miles 8.25 per cent, or over fifteen billion car miles.

It would represent an increase in our freight car stock of 198,417 cars. This number of cars figured at $1,350 each would add $267,862,950 to capital, would require more than one year for their construction and is about twice the number of cars which the Railroad Administration ordered for their 1918 requirements.

These figures are given not because it is expected that everyone will be able to equal the best under the varied operating conditions but it is evident from the wide margin between the average mileage per locomotive and the best mileage per locomotive that the average conceals some very disgraceful individual performances which should be improved and in the conservation of fuel, of steel, of labor, and of time this is a field that should not be neglected.

The railroads were taken over by the government not because it desired to go into the railroad business but because under the conditions which existed at that time increased efficiency was absolutely necessary. The efficiency with which the railroads had been operated prior to that time was not the question at issue because, however great that may have been, still greater efficiency was required.

It has been the general impression among the people, if we are to judge by the remarks made when the subject was discussed, that government operation of railroads would simply establish a big political machine and that efficient railroad men would be displaced to make room for politicians and for that reason the present organizations would be destroyed and replaced by inefficient ones. Nothing could be farther from the truth so far as the present Railroad Administration is concerned. Order No. 1 of the director general has made it clear that under government control of railroads there would be no disposition to replace competent, experienced railroad officers or employees. In fact, I can say emphatically that no railroad officer or employee who is efficient and diligent in the performance of his work was ever so secure in his position as he is at the present time.

The question before us at the present time is not as to whether government control or government ownership of railroads is a good thing or a bad thing—that will be settled by the people after the war.

The question before the railroad officers and employees today is solely one of operating efficiency and still greater efficiency in order to meet the demands placed upon them. The operation of the railroads of the country as a unit during the war is the most severe test that has ever been placed upon the railroad men of the country. The operation of railroads is not only the Railroad Administration's job, it is also the railroad man's job. It is not the Railroad Administration's reputation that is at stake, it is the reputation of the railroad man that is at stake; this brings the issue down to each individual, which is just where it should be.

The question before us is not what is the other fellow doing nor what did we do last year, but what am I doing now to help increase the efficiency of railroad operation. This question will be best answered by the record of achievement.

The railroad men of the country have furnished their full quota for the front in all branches of service; they have gone over the top in the Liberty Loans; they have repaired more locomotives and pulled more tons of freight than ever before and I am sure that the record of operating efficiency will be equally as good during the time the railroads are under the control of the administration.

Government Controls Timber Treating Industry

Report of Conference to Consider How Supply of Treated Timber for Railroads Could Be Increased

THE EFFECT OF THE WAR on the timber treating industry and on the supply of treated timber available for the railroads was the topic presented for consideration at a conference of members of the American Wood Preservers' Association, the committee on Wood Preservation of the American Railway Engineering Association and representatives of commercial treating plants and of manufacturers of preservative materials, which was held at Madison, Wis., on October 10. At this meeting John Foley, associate manager of the Forest Products section of the United States Railroad Administration, took the opportunity to inform the industry regarding the plans of the Government.

The Railroad Administration is fully committed to timber preservation and to the treatment of all forest products for which plant capacity and preservatives are available. With the centralization of tie purchases in the hands of the Railroad Administration it is necessary for commercial treating plants to change their practices of selling treated ties to that of selling the treatment only, as described in the *Railway Age* of September 13, page 519.

The questions now confronting the industry are (1) the extent to which the production of the preservatives now used can be increased; (2) the possibilities of using other preservatives not now commonly employed; and (3) the extent to which it may be advisable to revise present treating practices in order to conserve the supply of preservatives for that work most important.

In discussing the first question representatives of several manufacturers of creosote stated that they saw little hope of increasing the output of that material in the near future. The production of tar has been increased somewhat but a larger amount is also being burned so that there is no increase in the quantity available for creosote distillation. Representatives of zinc chloride producers indicated that there is some hope of an increased output of this material provided sufficient sulphuric acid can be secured. One firm now producing only a limited quantity expects to increase its output considerably by January 1, while another expects to increase its annual production by 1,000 tons next year.

The government has now placed creosote on a so-called clearance list under which the distribution is transferred from the manufacturers to the War Industries Board. The Chemical Section of this board allots the available supply to essential users in proportion to their demands. That for the railroads is distributed to the plants by the Forest Products section, no distinction being made between railroad-owned and commercial plants treating railroad materials. Existing contracts for the delivery of oil will not be cancelled or relet although the oil may be diverted from one plant to another as the roads using the treated timber are new parts of one unified system. No shipments of preservatives can now be made by the manufacturers without permits and specific shipping instructions. These clearance regulations apply at present only to creosote, but they will be extended to zinc chloride as soon as it is found that there is any tendency to accumulate larger than the normal supply of this material. The government does not desire to take over the distribution of zinc chloride so long as the plants can secure it direct, for it does not desire to interfere with the usual procedure of business unless necessary. No steps

have been taken to fix prices for preservatives and such action is not contemplated unless it is necessary to control profiteering.

In the investigation of the possibility of developing substitutes for creosote and zinc chloride to increase the total quantity of preservatives suitable for the treatment, a representative of one manufacturer stated that his company was prepared to build a large plant for the manufacture of sodium fluoride if it could ascertain that there is a sufficient demand to warrant taking this step. This company now operates a small plant with a capacity of 35 tons per month and is considering the advisability of greatly increasing this output. It has been used in considerable quantities by the Philadelphia & Reading Coal and Iron Co. for the past two years in the treatment of mine props for use in coal mines where it has been found superior to zinc chloride, particularly in the elimination of electrolysis. The serious disadvantage attending the use of this material at present has been the inability to develop a method of control whereby the strength of the solution and the depth of penetration can be determined accurately.

Attention was also called to the possibility of using wood tar as a substitute for the preservatives generally used, and it was stated that from 8,000,000 to 10,000,000 gal. of this material can be produced. While it has certain serious disadvantages its value as a possible substitute was emphasized.

In endeavoring to ascertain the extent to which it may be possible to revise present practices in the treatment of timber to conserve the preservatives for that work which is most important it was stated that it is the policy of the Railroad Administration in the allotment of creosote to give preference to the preservation of materials involving a high original investment such as bridge and dock work, and that the treatment of ties and similar materials was made secondary to this. Attention was called to the revision of the specification for the treatment of crossties with zinc chloride which is now under consideration by the Committee on Wood Preservation of the American Railway Engineering Association and which contemplates that (1) ties shall be air dried before treatment, (2) they shall be given a short preliminary steaming before the introduction of the zinc chloride and (3) they shall be treated with one-half pound of zinc chloride per cubic foot, injected in a weak solution to secure the maximum penetration of the timber. It will also probably be advisable to use ties treated with zinc chloride in parts of the country where this has not been considered economical before and where creosoted ties have been used exclusively, for since it is impossible to secure a sufficient quantity of creosote to treat all of these ties it is more satisfactory to treat them with zinc chloride than to insert them untreated.

The question was raised whether it was ever advisable to treat piling with zinc chloride. The consensus of opinion was that piling should not be treated with the preservative as long as any creosote was available or was being used for the treatment of ties, but if no creosote could be secured it was better to use zinc chloride than to install the timber in a structure untreated. Several instances were reported where piling treated with zinc chloride has given satisfactory service, particularly in the west.

The conference brought out in an interesting manner the position of the commercial treating plants. There has been much uncertainty regarding the attitude of the government towards this industry while the difficulty in securing the preservatives has introduced much embarrassment in the negotiations of the companies with their patrons. There will be no distinction between commercial and railroad-owned plants. With the plan outlined, each plant is assured of its share of the oil for use on railway work while the manufacturers are relieved of the difficulty of deciding between patrons in the distribution of their products. As stated above the quantity of material to be treated is limited solely by the capacity of the plant and the ability to secure preservatives.

The attitude expressed by those representatives of commercial treating plants who were present indicated that they were well satisfied with the measures which are being adopted. While adjustments may be necessary in the operating practices of certain plants, these are only such as may be necessary to adapt them to the conditions brought about by the war. In a few instances where plants may not be able to convert readily for railway work, it is expected that they can be given work for the army or navy. In other words, it is planned to concentrate the entire timber treating capacity of the country on essential work.

Orders of Regional Directors

NUMBER OF CARS IN TROOP TRAINS.—In supplement 1 to Circular 22, the Northwestern regional director announces that the maximum number of cars to be handled troop trains either loaded or deadhead has been fixed at 16 cars and during extremely cold weather the number should be limited to 12 cars to insure proper heating.

Sale of Unclaimed Freight.—In Circular 116, the Southwestern regional director interprets General Order No. 34-A as permitting advertising as a method of disposing of unclaimed freight if in the judgment of the individual road, the best results will thereby be obtained. The order was so worded that many took it to mean that unclaimed freight must be sold at public auction without advertisement.

Movement of Oil.—Circular 115 of Southwestern regional director—same as Supplement 3 to Circular 72, Northwestern regional director, see page 700, *Railway Age,* October 18.

Management of Tie Treating Plant Changed.—In an announcement, dated October 19, the Southwestern regional director states that the properties of the Santa Fe Tie and Lumber Preserving Company, Somerville, Tex., have been assigned to the jurisdiction of F. G. Pettibone, district director. These properties will hereafter be designated as the Somerville Treating Plant. The Gulf, Colorado & Santa Fe will continue to finance the plant but the Southwestern regional purchasing committee will have jurisdiction over the purchase and movement of materials into it for treatment. Shipments from the plant will be made only upon requisitions duly approved by the regional purchasing committee.

Grade Coal to be Furnished to Railroad Administration.—In Circular 117, the Southwestern regional director quotes a letter from the manager of the fuel conservation section which states that it is not the intention of the Railroad Administration to accept coal from mines which is inferior to the grade of coal produced for the commercial market, with a few exceptions necessary to make in the case of special war requirements. Federal managers are asked to advise the fuel conservation section specifically of any situation involving delivery of inferior coal which they are not able to rectify through their regular inspection forces.

Physical Examination for Mechanics.—Order 93 of Southwestern regional director—same as Order 3000-421, Eastern regional director, see page 700, *Railway Age,* October 18.

Track and Bridge Work for 1919.—In Order No. 94, the Southwestern regional director gives detailed instructions regarding track and bridge work for 1919, with particular reference to pile or trestle bridge repairs, track tie renewals and inspection before renewal, switch tie renewals, and the application of new joints to get further life out of rails. The Southern regional director issued the same instructions in Order No. 403.

Convention of the Maintenance of Way Painters

Three-Day Meeting at Chicago was Devoted to Discussions of the Present Problems in This Field

THE LABOR SITUATION, conditions in the paint supply field, and the use of labor saving devices, were among the subjects which occupied a considerable portion of the program of the fifteenth annual convention of the Maintenance of Way Master Painters Association, which was held at the Hotel La Salle, Chicago, October 15, 16 and 17. The first session was called to order on Tuesday morning by President H. E. Conrad, master painter, Pennsylvania Railroad, Huntingdon, Pa., with 41 members and guests of the association present. The registration of members was 33, which is considered a good showing for a total membership of 73, taking into account the epidemic which is now keeping so many people away from public gatherings.

The invocation was offered by Rev. Frank O. Beck of the Wabash Trinity Parish, Chicago, and an address of welcome was made by Harry B. Miller, prosecuting attorney, City of Chicago, in behalf of the city and the Chicago Association of Commerce.

All officers were re-elected for the ensuing year, these including: President, H. E. Conrad; first vice-president, H. F. Jones, master painter, Cleveland, Cincinnati, Chicago & St. Louis, Wabash, Ind.; second vice-president, Ole Stubstad, master painter, Chicago & North Western, Winona, Minn.; and secretary-treasurer, F. W. Hager, Fort Worth & Denver, Fort Worth, Tex. St. Louis was selected as the place of the next meeting, to be held October 14, 15 and 16, 1919.

The paint situation of today was the subject of a paper by W. R. Parker, John Lucas & Co., Chicago, which outlined the obstacles confronted by the paint industry as a consequence of the war. It discussed the restrictions to which the industry is subjected by the War Industries Board and the efforts which the various manufacturers are making to do their full share in winning the war. The influence of the present conditions on the supply and purchase of paint material was illustrated clearly by a table showing the increased cost of representative materials, based on June 1918 figures as compared with the cost in effect on January 17, 1917, this increase being given in percentages, as follows:

	Per cent increase
Varnish gums	From 10 to 75
Shellac-TN	180
Standard zinc oxide	5
Lehigh zinc	9
Lithophone	25
Silica	40
American ochre	90 to 170
American sienna	60
American umber	80
Linseed oil	75
Indian red	70
Grinders' lamp black	40 to 50

Robert H. Ford, principal assistant engineer, Chicago, Rock Island & Pacific, Chicago, spoke on the labor situation and gave a chronological account of the various events of the past four years which have been instrumental in bringing about the present shortage of labor. He described the social distinctions between the skilled and unskilled laborer and explained the conditions which have led to the formation of the floating labor class of this country. It is the problems arising from this particular class that have received the particular attention of the United States Employment Service since the early part of this year.

Other matters which were discussed included "Structural Metal Primers and Finishing Coats," by G. G. Mowat, Sherwin-Williams Company, Cleveland, Ohio; "Proper Handling of Paint as Received by the Painters," by S. W. Russell, president, Charles R. Long Company, Louisville, Ky.; "Carbolenium Wood Preservative," by B. M. McDade, sales manager, Detroit White Lead Works, Detroit, Mich.; and the "Proper Method of Painting the Interior of Water Tanks," a round table discussion by the members. The general conclusion of this discussion was that while many metal paints were a success on surfaces that were completely immersed at all times, practically all paints were subject to failure when exposed to alternate wetting and drying. Several members related experiences with special compositions that were applied with heavy coatings at high temperatures, but in practically all cases the time of service of these coatings was too short to establish a thorough test. Three other papers presented at this convention are abstracted below.

Painting Stations

By G. W. Thompson

Chief Chemist, National Lead Company, Brooklyn, N. Y.

Such a large number of paint materials enter into the products used by painters that it is impossible for everyone to become fully equipped with a knowledge of the suitability of these materials for the various ends that are sought. The number of paint materials is increasing steadily with a corresponding increase either in confusion or in the need of more study on the part of the user of paint materials, unless there is provided some simpler way of handling the whole question. Paint specifications for railroad stations have been complicated and bewildering and I would urge a simplification of formulae and simplifications of color schemes. This lack of simplicity is due, in my opinion, to a failure to appreciate some of the simpler principles of paint designing. I will give a few illustrations of what I mean.

Take the question of the durability of paint. As paint is made of vehicle and pigment, the question we should ask is to what extent is the durability of paint dependent upon the pigment or upon the vehicle, or both. It is obvious that pigment alone will not protect. It is equally obvious that oil alone will not protect, and yet it is perfectly true that pigments do not decay appreciably and that paint decay is due to the destruction of the oil present. These facts have led to two different conclusions. One is that as it is the oil that decays, the more oil in a paint the longer it will last. The other is that inasmuch as it is the oil that decays, durability is obtained by the protective action of the pigment.

There is a popular demand for high gloss finishing paints. I think this is a mistake. Very few paints having a high gloss, except enamel paints, will retain that gloss satisfactorily for more than a year. High gloss is generally obtained by an excess of oil, and my experience has shown that a high gloss paint at the end of one year will as a rule have much less gloss than a plant which had a semi-gloss at the beginning.

I would also direct your attention to the question of color and color schemes. You compare two paints and you see a difference. Is the difference trivial or is it a substantial one? Placed side by side the difference appears to be great. Separate the two paints a short distance from each other and you may not be able to see the difference. Apply these two paints to two different buildings and they may give equally satisfactory results insofar as the color effect is concerned. In judging of colors there ought to be some means of comparing them that will allow for considerable differences so long

as those differences do not substantially affect their practical use.

One other fundamental proposition should be considered in designing paint. All paints intended for decoration should be of colors that have no jarring effect upon the eye. All paints when applied, to get the best artistic results, should blend in harmony with all other colors which may come to the eye from the same general source. What I have had to say with regard to color may be summarized this way: Look only for substantial differences in color. Do not select colors that jar with each other, and do not demand pure whites except for line effects, but always have them tinted to harmonize with color environment.

Cleaning of Iron with Sand Blast; Use of Spraying Machine in Painting

By A. E. Wilson
Master Painter, New York, New Haven & Hartford, Hartford, Conn.

Painting over scale or the fine rust under the scale is labor and material wasted, as corrosion will continue as long as there is any rust under the paint. The only effective way to remove this rust is by the use of a sand blast. This method will remove all rust, dirt, etc., and leave the iron in a condition that will enable the new paint to stop further corrosion. The best outfit to use is a portable machine that is light and easily transferred in work cars and which can be set up on the job without blocking the main track or stopping trains.

In using the sand blast care should be exercised not to hold the nozzle too close or too long on the same place, as it will wear away the metal. The cost of cleaning by the sand blast varies according to the type of bridge to be cleaned, but it will average about $1 a ton, which is much cheaper than it can be done by hand.

The heavy scales of rust must be chipped off with hammers or air chisels, as the sand blast will remove them only by eating through and the men operating the nozzles are liable to go through too far and damage the iron. It is necessary to follow up the cleaning with a coat of good paint immediately, as corrosion starts very quickly after the use of the sand blast. All the surface cleaned should be painted before leaving the work at night, or it will be covered with a fine rust by the following morning.

As regards spraying of paint on bridges, personally I prefer the old fashioned way of applying a paint of medium weight with a good brush, except in places where one can not reach with a brush or swab. But in applying cold water paint or white wash on the interior of buildings or in the painting of concrete buildings I think spraying the material is the best and cheapest method. Concrete is so porous that it takes quite a little time to rub in the paint to fill up the pores, and unless you have reliable men they will skip over the outside of the surface and not fill it in, thus leaving it very uneven when finished. A portable compressor and tank for this work will pay for itself in one season if there are many concrete buildings to paint or white wash.

I would not recommend the spraying of stations or other station buildings. It is in pockets and other places that are difficult to get at with a brush, as on an I-beam bridge where the I-beams are so close together and it is impossible to get a brush or swab between them, that the sand blast and spraying machine do the best work.

In using the spraying outfit, the air pressure on the tank holding the material should not be more than is necessary to raise the material and cause it to flow slowly from the nozzle held in a working position. The air pressure at the nozzle should be just sufficient to atomize the material. The nozzle should be held about 6 in. to 10 in. from the surface of the work, and be moved back and forth with smooth and even strokes. Its operation is simple and any one with a little practice can cover a large area in a day.

Volume of Maintenance of Way Painting

This committee was appointed to gather data on the amount of material and labor expended in doing work carried on under the direction of the maintenance of way master painters. A questionnaire was sent to each member of the association requesting his co-operation in preparing an itemized statement of the amount of material used under his direction during 1917 and also the amount of labor in terms of total hours work and total pay-roll for the year. The 23 replies to this circular were thoroughly representative of the entire country as they included districts from Texas to New England and from Kentucky to Canada. The total mileage covered by these reports is 12,690, or approximately 5 per cent of the total mileage of main line in the United States. The amount of territory covered by the individual reports varied from 100 miles of line to 2,577.

With this information at hand, a table was prepared in which the amount of white lead, lamp black, putty, linseed oil, etc., reported by each district was entered. Then by totaling the amounts for each material and dividing by 12,690, the total mileage, quantities were obtained which represented the average amounts of material used per mile of railway line. Then taking the round figure of 260,000 for the total mileage of railway lines in the United States, figures were obtained which represent approximately the amount of material of each kind used in maintaining railroad structures in the United States during 1917. The table below gives the totals obtained:

White lead	3,400,000 lb.
Red lead	2,100,000 lb.
Lampblack	190,000 lb.
All other pigments	360,000 lb.
Fillers	22,000 lb.
Whiting	58,000 lb.
Putty	570,000 lb.
Glue	11,000 lb.
Mixed paint for bridges	630,000 gal.
Mixed paint for stations	490,000 gal.
Linseed oil	480,000 gal.
Turpentine	130,000 gal.
Other thinners	56,000 gal.
Other oils	120,000 gal.
Varnishes	33,000 gal.
Shellac	14,000 gal.
Alcohol	6,700 gal.
Brushes	140,000 gal.

A similar analysis made with respect to labor showed that the labor required in maintenance of way painting aggregated 82 hours per mile of line at a cost of $27. The total for the country was then estimated at 22,000,000 hours, or a total pay roll of $7,400,000. Approximate unit prices applied to the quantities of the various materials gave an approximate value for all materials used by the maintenance painters in the United States $3,500,000. This means that the total expenditure for maintenance painting aggregates close to $11,000,000 annually.

W. S. LACHER, Associate Engineering Editor, *Railway Age*, Chicago, Chairman.

The Sixtieth street tunnel, underneath the East River, at New York, providing a subway connection between the lines operated by the Brooklyn Rapid Transit Company under Broadway and Seventh avenue, Manhattan, and the new elevated lines in Queens Borough has been "holed through." This tunnel, which crosses beneath Blackwell's Island, is the deepest of the railroad tunnels in New York, being, at some places, more than 100 ft. below mean high water. The engineers of the New York State Public Service Commission, in charge of the work, report that, at some points, during the course of construction, it was necessary to use compressed air at the high figure of 48 lb. to the square inch, establishing a record.

Doings of the United States Railroad Administration

The First Compensation Contract Signed; Conditions at the North Atlantic Ports

WASHINGTON, D. C.

DIRECTOR GENERAL MCADOO on Tuesday affixed his signature to the first of the contracts with the railroads for their compensation during federal control based on the standard return as certified by the Interstate Commerce Commission. The first contract signed was with the Chicago and North Western and other corporations (subsidiaries), providing for an annual compensation of $23,364,028.55. A separate contract was signed for the Chicago, St. Paul, Minneapolis & Omaha. The contract with the Chicago, Burlington & Quincy and other corporations, which was also signed, provides for an annual payment of $33,390,079.61. Contracts were also signed with the Fort Worth & Denver, the Wichita Valley, and the Colorado & Southern. The contracts had previously been signed by the railroad executives.

Ten Months' Improvement at North Atlantic Ports

The Railroad Administration reports that accumulations of export freight in railroad terminals at the six North Atlantic seaports had been reduced on October 1 to 18,796 carloads, of which only 5,383 carloads were on wheels. Last December the export accumulations totaled 44,320 carloads—2,000,000 tons—with 12,552 loads standing in cars. Month by month, as the congestion was brought down, the quantity of freight handled went up, and the September export tonnage was more than double that of last December, January or February.

The statement characterizes the record as marking a revolutionary transformation in railroad conditions. "Perhaps no single development has had a more vital bearing on this country's war efforts nor brought greater relief and satisfaction to the responsible war leaders of both America and the Allies."

In September, just past, the export, in addition to bulk grain and coal, was 1,517,795 tons. Last December it was 682,563 tons. The increase was 69 per cent over September of last year, and 281 per cent over September, 1914. The trans-shipment of freight at the ports has proceeded so smoothly during the past few months that the menace of a break in the bridge to Pershing appears to be definitely removed. A "delinquent bureau" was established through which all "slacker" shippers and consignees were followed up and compelled to dispose of accumulated freight and cease misusing railroad facilities for storage purposes. "The rule that the railroad machine should be used to transport freight, not to hold it indefinitely, was enforced at all points."

ACCUMULATION REDUCED

The periodic accumulation figures for all ports (carloads) are:

	December	March	June	September	October	Per cent of Decrease
In cars.....	12,552	7,018	9,334	6,370	5,383	67.11
On piers etc.	8,349	7,000	6,321	5,116	5,064	39.34
On ground..	23,419	16,701	12,250	9,080	8,349	65.64
Total	44,320	30,719	27,905	20,566	18,796	57.59

For New York alone, which handles more than 60 per cent of all North Atlantic exports, the figures are as follows:

	December	March	June	September	October	Per cent of Decrease
In cars	8,069	3,188	5,454	3,239	2,745	65.98
On piers etc.	4,832	3,557	3,180	2,862	1,919	60.28
On ground..	13,687	9,729	7,311	5,537	4,914	64.09
Total	26,588	16,474	15,945	11,638	9,578	63.97

SERIOUS DANGER REMOVED

Last winter, when cars under load were backed up on sidetracks for miles inland, railroad officers in desperation arbitrarily dumped cars of non-perishable freight out upon the ground to release track space and cars. In the harbor lighters were delayed for weeks at a time with loads because the congested conditions prevented the prompt making up of composite cargoes. On January 6 there were 213 ocean-going steamers lying idle in New York harbor awaiting either cargo or bunker coal for the trip to Europe, although at this period shortage of bottoms was acute and the U-boat menace at its height.

The records show that railroad facilities for export have not been forced to their extreme limit at any time during the past six months. Excluding United States government war freight, which is accorded preference over all other traffic and excluding also bulk grain and coal, the deliveries of export in carloads at North Atlantic ports for the past six months averaged, daily, 1,055 cars in April; 1,348 in May; 1,351 in June; 1,480 in July; 1,232 in August and 1,651 in September.

The total export tonnage (excluding bulk grain and coal and government freight, which last year was very light) appears as follows:

	April	May	June	July	August	September
1917	1,001,603	915,786	1,007,226	822,439	1,079,942	897,547
1918	1,086,307	1,407,598	1,290,351	1,515,155	1,389,923	1,517,795

Of the 1,651 cars delivered daily in September, exclusive of United States government war supplies, only 215 carloads were commercial export freight; 779 carloads were for account of the French, British and Italian governments; 47 carloads were for the Belgian Relief Commission and 610 carloads were grain and grain products for the United States Food Administration.

TRANSPORTATION NEEDS FULLY MET

No shortage of railroad transportation for war activities or essential industries existed during the summer months; in fact, the capacity of the carriers for months has been in excess of the traffic offered. Export tonnage hauled in September was 9.2 per cent greater than in August; and all lines serving the North Atlantic ports declared themselves able to handle more freight. There has been some shortage in production. The extraordinary demands for steel have baffled even the great efforts of that industry. Food supplies have moved from the West to the seaboard in quantity and at a speed never before known. Shipments of livestock and other perishables eastward from Chicago on October 8 aggregated 1,318 cars. The increased movement of food has fully kept pace with the rapid increase of our expeditionary forces abroad, and the requirements of the allied peoples.

The domestic freight traffic to the seaport cities has grown at a rate approaching that of the exports. For the six weeks ended September 26 total deliveries at one port alone amounted to 115,363 carloads, an average of well over 3,000 cars a day.

THE METHODS EMPLOYED

The statement goes on to explain the measures taken to accomplish these revolutionary results. The War Department, the Navy Department, the Food Administration, and all the other Government Boards appointed experienced railroad traffic men to look after their interests. This prevented conflicting demands or orders and cleared up much of the

chaos previously existing. The Exports Control Committee has co-ordinated the operations incident to the export of freight to Europe, from all ports, and sees to the prevention of congestion at any one port. The close co-operation between our government and the agents of the European governments has also been an important factor. A. H. Smith, eastern regional director, early placed the operations of all railroads at each port under a single joint committee, thus fixing responsibility for prompt unloading and the regulation of delinquent consignees. Carload shipments were subjected to a rigid system of permits. The consignee of freight now has to get the permit necessary for the shipment of his car, and to do this he must show his ability to promptly unload the freight. Applications for permits are passed upon, at each port, by a single committee on which all railroads are represented.

Adequate storage space has been provided at or near the seaports to hold reserves sufficient to prevent delay to steamships. Freight movement from the west has been much simplified by new arrangements for assembling at gateways, and by sending single commodities through in solid trains. Railroad piers are utilized for loading direct from cars to steamers. The tugs, lighters and car floats owned by the railroads have been put under a single management at each port.

Coal export for war needs, not included in the foregoing figures, amounted, in the seven months ending with July, to more than 1,000 carloads a day, or a total of 10,915,337 tons; all this in addition to the vast supplies needed by steamships for fuel.

Conditions in Central Western Region

A report to Director General McAdoo from Hale Holden, regional director of the Central Western region, for the month of September, shows that the movement of traffic over the railroads in that region was better than normal and reviews in detail traffic conditions as well as economies effected through better loading, consolidations of facilities and more direct routing.

The report demonstrates that the "sailing day" plan has reached the point where it is saving 3,429 cars per week. There has been an increased loading in the region of coal, grain and live stock. Particular attention has been paid to the live stock situation with the result that an increase of 19 per cent in loading was brought about. Good results were also achieved through more intensive loading of all kinds of commodities throughout the month. Full car supply was available in the midcontinent oil-field for the loading of oil. Mr. Holden's report also shows that in spite of disadvantages more shop work was accomplished in the region than in September, 1917.

Ticket office consolidations in the region have been effected which will save a total of $567,978 per annum.

The report follows:

Movement of Business

The weather has been seasonable and favorable operating conditions have existed on all lines with but very few isolated cases of temporary congestion or accumulation and it has been necessary to divert from proper routes or delay very little traffic.

The movement of grain which was unusually heavy during the month of August, continued in September up until the eighteenth when on account of the fact that the elevator capacity at practically all primary markets was filled much earlier than usual it was necessary, through co-operation with the Food Administration and grain control committees to place a limited embargo, under the permit system, at the principal primary markets. Grain control committees were established and through the splendid co-operation of the grain interests generally the situation has been well in hand since the date mentioned above.

The car supply generally has been adequate to meet requirements with the exception of double-deck stock cars for special loading. Unfavorable feeding and weather conditions on western mountain ranges caused practically all of the stock raisers and feeders to want to ship at once. The supply of both single and double-deck stock cars is limited and there have been some disturbing elements to the situation in consequence resulting from our inability to satisfy all the interests. As a matter of fact, however, the business has been moved as fast as the stock yards companies could handle it and we have been compelled to hold back stock at Omaha and Kansas City because it could not be taken care of by the stock yards company.

Car loading was as follows:

1918	1917	Increase	Per cent increase
Total Cars Coal Loaded			
164,342	142,299	22,043	15.5
Total Cars Grain Loaded			
33,658	27,402	6,256	22.8
Total Cars Revenue Freight Loaded			
553,868	573,377	19,509 dec.	3.4 dec.
Total Cars Revenue Freight Received from Connections			
301,756	292,946	8,812	3.0

While there was a substantial increase in the loading of several commodities, such as coal, grain and live stock, the total loading shows a slight decrease caused by falling off of miscellaneous loading and also by the more general intense loading of cars this year as compared with the same period last year. This is particularly true of the less carload merchandise loading, where a very large number of cars were saved by heavier loading and the adoption of the "sailing day plan."

Sailing Day Plan.—During the month of September the sailing day plan was inaugurated at the following points, resulting in savings shown:

Car Savings Per Week

	Cars		Cars
Albuquerque, N. M.	48	Los Angeles, Cal.	124
Arkansas City, Kan.	12	Muscatine, Ia.	28
Burlington, Ia.	125	Oakland, Cal.	70
Davenport, Ia. / Rock Island, Ill. / Moline, Ill.	64	Ottumwa, Ia.	49
		Pueblo, Col.	82
		Raton, N. M.	2
Deming, N. M.	11	Sacramento, Cal.	40
Denver, Col.	187	San Francisco, Cal.	138
Dodge City, Kan.	45	San Jose, Cal.	10
Fresno, Cal.	55	Springfield, Ill.	84
Great Bend, Kan.	25	Stockton, Cal.	49
Hutchinson, Kan.	54	Topeka, Kan.	110
Independence, Kan.	6	Wellington, Kan.	25
Kansas City, Mo.	570	Winfield, Kan.	15
Larned, Kan.	14		
Las Vegas, N. M.	48	Total	2,091

In my report for the month of August I showed that the total saving from the installation of the plan during that month aggregated 1,338 cars per week. The total saving to date is therefore 3,429 cars per week which is without question having a favorable effect on the car situation generally.

Fruit Traffic.—126 fruit specials, with 4,758 cars operated from California to the Missouri river and Chicago, with an average of 37 cars per train. 74 special fruit trains originated in Colorado, with a total of 2,226 cars, an average of 30 cars per train. As in former months, all fruit specials were operated on conservative schedules and were filled to enough tonnage with dead freight to insure economical train load and satisfactory time performance.

Livestock.—The loading of livestock in this region shows an increase of 19 per cent. Kansas City market handled a total of 19,046 cars inbound, an increase over same month last year of 5,705 cars or 42 per cent. 8,396 cars handled outbound, an increase of 2,022 cars or 31.7 per cent. South Omaha market had inbound 14,040 cars, increase 3,506 cars or 33.3 per cent. Outbound 7,243 cars, increase 1,243 cars or 20 per cent. St. Joseph market handled a total of 5,662 cars inbound, an increase of 1,312 cars or 30 per cent; outbound 1,527 cars, increase 449 cars or 41.6 per cent.

Oil Traffic.—A full car supply was available in the mid-

continent fields at all times. From this district a total of 516 oil trains were operated, with 14,319 cars, an average of 28 cars per train, of which the Santa Fe handled 91 trains, with 2,984 cars or an average of 33 cars per train.

Troop Movements.—We operated from all camps a total of 73 special trains, with 26,766 men, the larger movements being 21 trains, 8,316 men; 20 trains, 6,510 men; and 18 trains, 8,431 men. All trains were operated on schedule and without accident.

Coal Traffic.—The coal situation in Illinois and Indiana during the month of September was more satisfactory in point of car supply than during the month of August, but much less satisfactory from a production standpoint, as indicated by the following figures which cover loading in the Central zone or district and are a little more in excess of the actual coal loading in the Central Western region:

	August	September
Cars loaded 1918	184,235	172,585
Cars loaded 1917	150,940	146,302
Increase over previous year	33,293—22%	26,283—18%

It will be noted less cars were loaded in September than during the previous month due to mines not working Labor Day and many mines being shut down on the 18-45 registration day, and for the primary a few days later. Conversely, these holidays enabled the railroads to make a better showing as to car supply.

Even with the decreasing loading the Fuel Administration has been pressed to provide markets, and has only been able to do so by arranging for the sale of coal to railroads for movement beyond the normal commercial zone. In order to continue the ratio of increased loading over last year, particularly in Illinois, the Fuel Administration gave consideration the latter part of September to the established zone lines. As a result, the present summer zone line through Wisconsin and Minnesota will be continued as winter line on all prepared sizes and mine run. The lower peninsula of Michigan will be held open all winter for Indiana, all grades, and for Illinois screenings.

The accumulation of coal on track in the Chicago district is growing less and is practically down to normal. The state and Cook county organizations of the Fuel Administration have taken hold of the situation vigorously and will undertake to force unloading.

Taking it as a whole, the performance of the railroads during the month of September in this territory in coal loading was all that could be asked by the Fuel Administration. There is the closest co-operation between the railroad officers and the Fuel Administration and the general organization is working harmoniously and to the best interests. Reports for the five months since April indicate that the commercial coal requirements for Illinois consumption were 48,360 cars per month or a total of 241,800 cars. We have loaded and handled 290,380, an excess over the requirements of the Fuel Administration of 48,450 cars or 17 per cent. Figures for September, not yet available in detail, indicate a still further excess over the requirements.

Terminal Situation.—All the large terminals in the district have been operated effectively and outside of the abnormal movement of grain and livestock above mentioned there has been no congestion either in carload or less carload business. The labor situation at freight houses has become more stabilized than for any other month during the past year and the result has been a clean-up at all the less car load freight houses to practically a normal basis.

Power and Equipment Conditions.—Our labor situation seems to be improving and the force of men in the mechanical department as shown by the following statement is encouraging. Figures quoted indicate a slight increase in the percentage of engines out of service requiring over 24 hours to repair, but the situation is better than indicated in view of the fact that more of our power has had general overhauling and is, I think, in better condition generally than it was this time last year. Our orders for new equipment are not being filled as rapidly as we would like to see them but this condition is receiving necessary attention.

MEN IN CAR AND LOCOMOTIVE DEPARTMENTS

	September 1918	1917	Increase	Per cent
Car department	25,634	22,538	3,016	13.5
Locomotive department	63,306	56,693	6,613	11.7
Total	88,940	79,281	9,659	12.2

Total cars on line	379,106
Bad orders	20,134
Per cent bad orders	5.3%
Bad orders same date last year	20,020
Increase	114—.6%
Total locomotives on line	12,242
Number out of service for repairs requiring over 24 hours	1,974
Per cent out of service	16.1%
Number out of service for repairs requiring over 24 hours same date last year	1,749
Increase	225—12.9%

Number of locomotives turned out of shops:
1918 3,050
1917 2,621
Increase 16%

Number of foreign locomotives turned out of shops:
11 locomotives repaired for B. & O.

Number of locomotives repaired for Eastern lines; classified repairs:

C. B. & Q.	A. T. & S. F.	C. R. I. & P.	I. C.
West Burlington Shops	Topeka Shops	Silvis Shops	Burnside Shops
2—B. & O.	2—B. & O.	3—B. & O.	4—B. & O.

Number of locomotives on foreign lines:

A. T. & S. F.	C. R. I. & P.	I. C.	S. P.	U. P.
19 on Penna.	15 on Penna.	3 on B. & O.	2 on Penna.	4 on C. & O.
	8 on Frisco.	1 on Penna.		3 on H. V.
		3 on L. & N.		7 on B. & O.

Maintenance of Way.—The federal managers as a whole report the condition of their track and property in as good condition as it was last year. There are one or two exceptions to this statement, the explanation being that shortage of labor is responsible for the condition. The proper departments at Washington have been advised of the rail and tie situation which at the present time is more or less discouraging. Our lines are short approximately 230,000 tons of rail and the only immediate prospect in sight is the output from the Colorado Fuel & Iron Company at Minnequa, Colo., from which we expect to get 3,500 tons per week. This is being made a study of special investigation by my engineering staff. The tie situation is unsatisfactory. The shortage as of September 1 represented approximately 6,200,000 ties, an average of 120 ties per mile of line in the region. This has been brought to the attention of the Central Purchasing Committee. Attention is being given to the question of providing for the more important classes of materials which will be required for improvement and maintenance work during the year 1919. Arrangements are in making to place orders so as to get a reasonably prompt delivery next spring.

Routing.—Reports received so far for the month of September show a total saving of 492,714 car miles as result of recruiting shipments from circuitous to direct routes. These figures do not include savings effected by shippers selecting direct routes upon the request of the carriers, nor do they include all savings effected by the carriers in rerouting at point of origin.

Consolidated Ticket Offices.—During the month of September consolidated ticket offices were opened at Denver, Colorado; Kansas City, Mo.; Peoria, Illinois; St. Joseph, Mo.

Prior to September 1, 21 offices were opened and there now remain but five offices to be opened. It is estimated that these consolidations will result in an annual saving of $379,059.16 for rent, $188,919.37 for salary and other expenses, or a total of $567,978.55. Our reports show that in the offices that have been opened the service is good, although great difficulty is experienced in securing and holding experienced employees. The school at Chicago for the education of women as ticket sellers and information clerks was opened October 1. Much interest in the project has been developed and more than 1,000 applications for enrollment were filed. The school opens with 50 students which is the total that can be properly handled. The per-

sonnel of the next class, which will start about eight weeks hence, is also arranged.

Reductions and Increases in Passenger Train Miles.—During the month of September there were additional eliminations of 26,500 passenger train miles in local service on the O. S. L. between Ogden and Salt Lake City. On the other hand because of the very heavy travel it was found necessary to restore trains 7 and 8 on the Union Pacific between Omaha and Ogden, effective September 1. As a result of putting these trains on, the Union Pacific was enabled to eliminate the second section of train 9 from Omaha to Ogden and train 6 from Ogden to Omaha, so that there was no increase or decrease in train mileage, but the addition of trains 7 and 8 made possible the reduction between Ogden and Salt Lake City mentioned above. In addition, a revision of schedules on the L. A. & S. L. between Salt Lake City and Nephi resulted in saving 55,714 train miles. The net reduction is, therefore, 82,214 train miles.

Early Movement of Winter Supplies.—The campaign to induce shippers and receivers of freight to arrange for early movement of their traffic in order to relieve the situation during the winter months has been carried on energetically and reports show that excellent results have been and are being obtained.

Foreign Line Representation by Home Line Roads.—One of the most useful services performed in the past by the off-line agencies was the information they were able to give shippers in regard to rates, routes, terminal facilities, etc., with respect to their lines, and the assistance they were able to render in connection with shipments to or from points on such lines. In order that this service may still be available in so far as possible, arrangements have been effected at a number of important cities and will be put in effect at others, by which each home line has been designated to represent one or more foreign lines.

Unification of Facilities.—The pairing of tracks of the Denver & Rio Grande, Atchison, Topeka & Santa Fe and Colorado & Southern between Denver and Pueblo was made effective October 1. Consolidation of the Wabash-C. B. & Q. trackage between Tracy and Albia, Iowa, and abandonment of the Wabash line practically are perfected and will be completed by the first of November. Joint operation of the C. B. & Q.-C. & N. W. lines Orin Junction to Shoshoni has been arranged for between Casper and Orin Junction. Pairing of Western Pacific and Southern Pacific tracks in Nevada is progressing and it is expected the operation of these two main lines as double track will become effective about October 15.

New Regulations Governing Repairs to Equipment

Director General McAdoo has issued General Order No. 47 prescribing the following regulations to govern the determination of costs and the compilation and rendition of bills by one carrier under federal control against another carrier under such control for repairs to equipment actually made on and after October 1, 1918. Bills for repairs actually made prior to that date are to be rendered and the costs for such repairs shall be determined as heretofore.

Repairs to Cars

(1) The cost to repair freight and passenger train cars and work equipment shall be borne and included in the operating expenses of the carrier which, under the rules and practices, applicable at the time repairs are made, may be responsible for such repairs.

(2) The cost of repairs made by any carrier to its own cars or to cars of another carrier for which it the repairing carrier is responsible shall be based upon actual applied material and labor costs plus a proper proportion of "shop expenses," as prescribed by the rules of the Interstate Commerce Commission or which may hereafter be prescribed.

(3) If the cost of repairs made to cars by one carrier be chargeable to another carrier such costs shall be based on the rules prescribed by the Master Car Builders' Association, which were applicable at the time such repairs were made. Details in support of such repair costs shall be prepared as heretofore.

(4) There shall be compiled monthly, from the detail record referred to in the preceding paragraph, one statement against each carrier under federal control for the repair costs chargeable to it. Such monthly statements shall be made in duplicate and shall show separately for freight train cars, passenger train cars and work equipment:

(*a*) Total cars repaired.
(*b*) Total labor costs including shop expense costs.
(*c*) Total material costs including handling and other costs chargeable to material.
(*d*) Added per cent.
(*e*) Total costs.

(5) The originals of such statements shall be rendered to and accepted by debtor carriers as rendered, in accordance with the provisions of General Order No. 20.

(6) The duplicates of such statements shall be attached to the detail data from which they are made and retained by the carrier making the repairs.

Repairs to Locomotives

(7) The provisions of paragraphs (1) and (2) of this order with respect to repairs of cars shall in like manner apply to repairs of locomotives.

(8) The costs for repairing locomotives of one carrier under federal control for or for account of another carrier under such control shall be determined in the following manner:

(*a*) To the cost of all applied material there shall be added 15 per cent to cover cost of handling.
(*b*) To the cost of all applied labor there shall be added 10 per cent to cover accounting and other incidental costs.
(*c*) Proportion of shop expense costs.
(*d*) The aggregate of all such costs shall represent the amount to be charged for the repairs.

(9) Details comprising such repair costs shall be compiled and kept by the repairing carrier, from which monthly statements in duplicate shall be prepared against the carrier responsible for such costs. Such statements shall show the repair costs for each individual locomotive stated in the following detail:

(*a*) Total labor costs.
(*b*) Total material costs.
(*c*) Shop costs.
(*d*) Added per cent for labor.
(*e*) Added per cent for material.
(*f*) Total cost.

(10) The orginals of such statements shall be rendered to and accepted by debtor carriers as rendered, in accordance with the provisions of General Order No. 20. Duplicates shall be attached to the detail data from which they are made and retained by the carrier making the repairs.

Additions and Betterments Costs

(11) If additions and betterments be made by one carrier under federal control to the equipment of another carrier under such control, the owning carrier shall be billed by the carrier making the improvements for the costs thereof. Such bill shall show the kind and class of equipment, the initial and number thereof, as well as such details as to specifications and costs as may be necessary to enable the owning carrier to make proper record of the improvement. Bills for such costs shall be subject to check and verification by the owning carrier. Bills for additions and betterments costs shall not be included with bills for repair costs.

(12) If in repairing a unit of equipment a change in the standard established by the owner be made such as substitution of parts, advice of such change shall be given the owner.

Equipment Destroyed

(13) If a unit of equipment of one carrier under federal control be destroyed on the line of another carrier under such control, advice of such destruction shall be promptly given to the owning carrier by the carrier on whose line the unit was destroyed. Upon receipt of such advice the owning carrier shall bill the destroying carrier therefor, in accordance with Master Car Builders' Association rules as now in effect, or as may hereafter be prescribed.

Materials Furnished by One Carrier to Another

(14) Material furnished by one carrier under federal control to another carrier under such control for use in repairing or improving the equipment of the owning carrier shall be billed by the carrier furnishing it and paid for by the repairing carrier at costs at which the material is carried in the accounts of the owning carrier plus actual out-of-pocket handling or shipping costs. Such material shall be taken into the accounts of the carrier to which it is furnished at such billed costs, to which shall be added freight and other handling costs actually incurred by the receiving carrier. The costs thus determined shall be used as a basis for determining the cost of material used in such repairs or improvements.

(15) Bills for material furnished as prescribed in the preceding paragraph shall be made in detail. They shall be subject to check and reclamation or rejection by the debtor carrier in respect to damage or shortage.

(16) Bills for repairs to equipment for which private owners or carriers not under federal control (including Canadian and Mexican railroads) are responsible shall, unless and until otherwise ordered, be made and rendered as heretofore in accordance with Master Car Builders' rules applicable at the time such repairs are made.

(17) Bills for repairs to equipment made by carriers not under federal control against carriers under such control shall be tested, verified and paid by the carrier responsible for such repairs as heretofore.

(18) The provisions of this order in respect to the rendition of monthly statements shall take effect on October 1, 1918, and shall apply only to repairs actually made on and after that date. Bills for repairs made prior to that date shall be rendered as heretofore.

New List of Systems of Transportation Under Federal Control

The Division of Traffic in Circular No. 5 has promulgated a list of the railroads and systems of transportation under federal control for use in connection with the com-

piling and publication of tariffs and schedules, the issuing, publication, filing or changing of rates, fares, charges, classifications, regulations or practices, or matters pertaining thereto. The list has been published for the director general and filed with the Interstate Commerce Commission for the purpose of showing the names of the railroads and systems of transportation under federal control for convenient use and reference in all matters pertaining to or connected with tariff publication and rate regulation. The circular states that the list must not be used or construed as determining or affecting the status or relation with the government of any carrier shown or omitted or the method or manner of operation of any carrier under federal control. The list is made up as of October 10 and will be amended from time to time to include other lines as their status becomes fixed. It includes nearly 700 names, including in addition to the larger roads a considerable number of belt line, switching, terminal, station, bridge and steamship companies, many of which are subsidiary to one or more of the larger companies, and also the inland waterway systems under federal control.

Report on Condition of Locomotives

The table showing the condition of locomotives on the roads controlled by the Railroad Administration for the week ending September 28, 1918, indicates that as far as locomotives are concerned the railroads are in pretty good shape, having a general average of only 14.4 per cent of locomotives in shops. It is particularly gratifying to notice that the number of locomotives turned out of the shops for this week is an increase of 1,277 over the number turned out during the same week of last year. At the same time the number of employees increased 27,793 for the week, over the number employed during the corresponding week last year. During the week 236 locomotives were repaired in shops on foreign lines.

LOCOMOTIVE CONDITION REPORT FOR THE WEEK ENDING SEPTEMBER 28, 1918.

Regions	No. of locos. on line	No. of locos. serviceable	No. of locos. awaiting shop	Locos. out of service 24 hrs. Per Cent	Locos. turned out of shop 1918	Locos. turned out of shop 1917	Foreign locos. repaired	Number of employees 1918	Number of employees 1917
Allegheny	10,045	8,617	1,428	14.2	1,863	1,463	36	44,763	39,079
Central Western	11,913	10,066	1,847	15.5	802	655	53	60,924	54,396
Eastern	18,395	15,845	2,550	13.8	1,911	1,585	58	78,991	71,091
Northwestern	9,267	8,011	1,256	13.5	375	357	19	32,368	29,922
Pocahontas	1,968	1,741	227	11.5	194	149	6	10,178	9,537
Southern	6,390	5,428	962	15.0	361	316	29	25,257	22,374
Southwestern	5,148	4,279	869	16.8	377	281	35	22,845	21,139
Total	63,126	53,987	9,139	14.4	6,038	4,806	236	275,326	247,533

Agricultural Committees

To promote agriculture in the southern and the far western states the railroad administration has appointed committees of railroad officers to investigate local conditions and submit recommendations looking to improved experimental work and educational activities wherever practicable. In adopting this policy the administration expects to promote agricultural extension work more actively than in the past. Agricultural emigration, however, will be frowned upon during the continuance of the war.

The agricultural committee of the north and west consists of the following: L. Seagraves, industrial commissioner, Atchison, Topeka & Santa Fe, Chicago, chairman; F. S. Welsh, New York Central; J. B. Lamson, C. B. & Q.; L. J. Bricker, Northern Pacific; W. L. English, St. L.-S. F.; F. S. McCabe, C. M. & St. P.; Douglas White, Los Angeles & Salt Lake.

For the southeastern region Texas and Oklahoma, the committee consists of W. W. Croxton, general passenger agent, A. B. & A., Atlanta, chairman; G. A. Park, Louisville & Nashville; H. J. Schweitert, Illinois Central; J. C. Welty, Missouri Pacific; B. L. Hammer, Seaboard Air Line; J. C. Williams, Southern, and T. L. Peeler, Dallas.

Political Order Modified

Director General McAdoo has agreed to a slight modification of his General Order No. 42, requiring railroad men to abstain from political activities, at the request of the brotherhoods of train service employees, who in several conferences with the director general protested vigorously against its provisions. The principal change, however, is in recognition of the fact that railroad employees constitute a large proportion of the population in many small communities and permits them to hold local offices under certain conditions, but as to the principle of the order the director general has declined to yield. The changes are incorporated in General Order No. 48 issued as a substitute for No. 42 and Supplement No. 1 thereto, as follows:

"The issuance of General Order No. 42 was for the purpose of extending to officers, attorneys and employees in the railroad service of the United States substantially the same regulations as to political activity which have been applied for many years through civil service laws and executive and departmental orders and regulations to other employees of the United States. These laws, orders and regulations conform to a wise policy which has long had the support of the people of the United States regardless of political parties. Since the government has taken control of the railroads and their former officers, attorneys and employees have become public servants, it is necessary that the same policy as to political activity be extended to them as to other employees of the United States. As employees of the government, they cannot be properly exempted from the policy applied to other government employees.

"It has developed, however, since General Order No. 42 was issued, that there are many communities in the United States which are composed largely, and in some respects almost wholly, of railroad employees and their families, and that the proper civil administration of such communities makes it necessary that railroad employees should hold municipal offices. It is clear that in such cases exceptions should be made. Such exceptions have been made by the government in other cases (such as navy yards in certain localities) where the population consisted wholly or in large part of government employees, and where it was necessary for proper administration of civil affairs such government employees should hold local political offices.

"It has, therefore, been determined to permit railroad employees to hold municipal offices in the communities in which they live, provided they do not neglect their railroad duties as a result thereof, and also to limit Section 2 to a prohibition against railroad employees acting as chairmen of political conventions or using their positions in the railroad service of the United States to bring about their selection as delegates to political conventions, in order to harmonize said Section 2 with existing civil service rules and departmental regulations.

"It is, therefore, ordered that no officer, attorney or employee shall:

"1. Hold a position as a member or officer of any political committee or organization that solicits funds for political purposes.

"2. Act as a chairman of a political convention or use his position in the railroad service of the United States to bring about his selection as a delegate to political conventions.

"3. Solicit or receive funds for any political purpose or contribute to any political fund collected by an official or employee of any railroad or any official or employee of the United States or any state.

"4. Assume the conduct of any political campaign.

"5. Attempt to coerce or intimidate another officer or employee in the exercise of his right of suffrage. Violation of this will result in immediate dismissal from the service.

"6. Neglect his railroad duties to engage in politics or use his position in the railroad service of the United States to interfere with an election. An employee has the right to vote as he pleases, and to exercise his civil rights free from interference or dictation by any fellow employee or by any superior, or by any other person. Railroad employees may become candidates for and accept election to municipal offices where such action will not involve neglect on their part of their railroad duties, but candidacy for a nomination or for election to other political office, or the holding of such office, is not permissible. The positions of notaries public, members of draft boards, officers of public libraries, members of school or park boards, and officers of religious and eleemosynary institutions are not construed as political offices.

"7. In all cases where railroad officers, attorneys and employees were elected to political offices prior to the issuance of General Order No. 42, August 31, 1918, they will be permitted to complete their terms of office so long as it does not interfere with the performance of their railroad duties.

After the completion of said terms of office, they will be governed by the provisions of this order.

"8. In all cases where railroad officers, attorneys and employees were nominated for political offices, and had become candidates therefor prior to the issuance of General Order No. 42, August 31, 1918, they will be permitted to hold and complete the terms of office to which they may be elected at the general election to be held November, 1918, to the extent that the holding of such offices shall not interfere with the performance of their railroad duties. After the completion of such terms of office, they shall be governed by the provisions of this order.

"Railroad men have given ample proof of their loyalty to their government. I am confident that they will gladly and patriotically accept now those reasonable governmental regulations concerning political activity which their welfare and America's cause demand. They are the same regulations in their general scope and application as all other government employees have lived under for many years without the loss of any essential rights and with added dignity to their citizenship."

The new order was approved by President Wilson by his signature.

Fluctuations in Expenses to Be Explained

The Railroad Administration is arranging to secure an explanation of the causes of fluctuations in operating expenses for the purpose of showing how they are affected by wage rates or material prices. For this purpose the Division of Operation has issued Circular No. 21 which provides:

1. In connection with form O. S. 7, "condensed income account and operating expenses" (see circular No. 15), a monthly statement of "explanation of fluctuations in operating expenses" will be required for all Class I roads, effective with the report for the month of August, 1918. The statement should be made in triplicate and forwarded to the operating statistics section on or before the tenth day of the second month following that to which the figures apply.
2. It is considered impractical to prescribe a standard form for the explanation statement, but the following general principles should be observed:
3. The explanation statement should be typewritten on paper of letter or legal size.
4. The text and the tabulated figures therein should explain the noticeable increases or decreases in comparison with the same month of the previous year.
5. The explanations of such noticeable increases or decreases should follow the primary expense accounts as specified in form O. S. 7, and they should be compared with the increases or decreases in the related units of performance, such as train miles, locomotive miles, car miles, gross ton miles, net ton miles, miles of road operated, and other data reported on forms O. S. 1 to O. S. 6, inclusive.
6. While it is not intended that any additional accounting shall be made necessary by this circular, it is desirable that the explanations shall, in the case of the major items of expense, make some distinction between the elements of labor and materials, and between increases due to higher wage rates or higher prices and additional forces or greater consumption of material.

Revision of Switching Charges

The Division of Traffic of the Railroad Administration has authorized on one day's notice the revision of switching charges for movements not in connection with line hauls which were increased under General Order 28 by the addition of specific amounts. This revision will be on the basis of adding 25 per cent to the switching charges in effect May 23, subject to a minimum charge of $2.50 per car for intra-plant switching and $5 per car for intra-terminal and inter-terminal switching. The commodities affected are coal, coke, stone, sand and gravel, brick, cement, plaster, lime and cotton. The switching charges on these commodities were increased by the addition of specific amounts provided in General Order 28, and the revised basis will be a reduction in all cases. This authority does not apply where freight rate authorities previously issued have authorized the revision of charges as increased by General Order 28. It is issued as a temporary measure and it is expected that further consideration will be given to a revision of switching charges not in connection with line hauls to a consistent and reasonable basis.

The Railroad Administration has authorized the cancellation on one day's notice of the provision published in Southern territory to the effect that the minimum class rate scale and minimum charge of $15 per car as authorized by General Order 28 will apply in connection with switching charges within the limits of industrial switching districts.

Improvement in Ticket Selling Practice

Effective on November 1, 1918, the sleeping and parlor car rate and the additional passage charge for occupancy of space in sleeping or parlor cars will be combined and both charges will be represented by the sleeping or parlor car ticket, except in cases of furlough fare, clergy, and similar tickets, where the two charges must be kept separate. When fares are paid on trains, the sleeping or parlor car conductors will make the collections of both charges, and issue one ticket to cover.

This plan will do away with the delays and confusions now incident to the sale of three separate tickets, and the collection of three separate charges for a railroad journey in a sleeping or parlor car. As rapidly as the necessary alterations in ticket offices can be made, the sleeping car and railroad ticket selling forces will be combined and it will no longer be necessary for a passenger to go back and forth between two different ticket windows at union stations in order to get his sleeping car and railroad tickets and arrange for his accommodations, because both kinds of transportation will hereafter be sold by the same ticket clerk. It is thought that this arrangement, made possible by the fact that the Pullman service is now under federal control, will prove a great convenience and time saver to the traveling public, and will tend to keep down the congestion at ticket offices in union stations.

Effect of Influenza Epidemic

The Railroad Administration on October 23 made public a report of the summary of traffic conditions in each region for the preceding week. These reports indicate continued heavy traffic and difficulties caused by the influenza epidemic in nearly all parts of the country. In the Eastern region the statement is made that: "Passenger Traffic shows decrease on account of influenza and cancellation of public gatherings." The Allegheny region reports that: "The influenza epidemic has seriously interfered with train movements and station labor." The Southern region reports that: "Passenger travel has been largely decreased by influenza and the state fairs of a number of states have been abandoned on this account." The Central Western region reports: "Passenger travel shows decreases on account of the epidemic." The Southwestern region reports: "Passenger travel reduced by epidemic, which is also interfering with work in shops and offices."

Permit System for Wheat

At the request of the Food Administration and because of lack of storage facilities at St. Paul and Minneapolis, the Railroad Administration has found it necessary to establish an individual permit system for the shipment of wheat into Minneapolis. This system has been in effect on all coarse grains but has not been in effect on wheat. It is now necessary to introduce the individual permit system as to wheat to prevent accumulations. The permit system went into effect on October 23.

Contracts Let for Boats for Mississippi River

The Railroad Administration has let contracts for the construction of six steamers and 40 steel barges for service on the Mississippi and Warrior rivers at a total cost of $6,170,000, deliveries to be in from two to 12 months after the receipt of steel. The steamers will be equipped with engines of 180 horse power and the barges will have a capacity of 2,000 tons of freight in eight feet of water.

At the recent monthly meeting of the New York Railroad Club, D. W. Pye, president of the Tuco Products Company, Inc., was elected treasurer to succeed the late R. M. Dixon. Roy V. Wright, managing editor of the *Railway Age* has been appointed chairman of the subjects committee.

The Avis Shop Band at the New York Central's "Buy Another Bond" Rally

$164,992,150 Subscribed By Railway Men

Average Liberty Loan Subscription Over $100. The List of 100 Per Cent Roads a Long One

INCOMPLETE RETURNS to the Director-General on Monday showed the railway men of the country had subscribed $164,992,150 to the Fourth Liberty Loan, as compared with $106,655,450 to the Third Loan. The total number of employees was 1,642,694, so that the average subscription was over $100.

The Central Administration at Washington subscribed 100 per cent for an average subscription of $493.58. Of the regions the Eastern secured the largest total, namely, $44,580,450, but the Southwestern secured the best percentage, namely 99.2 per cent, the employees subscribing with an average subscription of $124.

The details by regions follow:

Region	Number subscribers	Percentage	Amount subscriptions	Amount per emp.
Central Administration Headquarters (Washington)	1,013	100	$500,000	$493.58
Southwestern	165,946	99.2	20,661,250	124
Northwestern	236,252	93.15	25,649,150	108.57
Pocahontas	43,654	.....	3,651,700	.....
Allegheny	273,240	88.95	21,899,650	80.15
Eastern	473,001	85	44,580,450	94
Southern	156,215	74	15,116,550	84
Central Western	293,373	94	32,933,400	110
Total	1,642,694		$164,992,150	

The 100 Per Cent Roads

The list of roads that reached 100 per cent subscribers is a long one and many important roads are included. Among the more important lines are the following:

EASTERN

Buffalo Creek.
Delaware, Lackawanna & Western.
Grand Rapids & Indiana.
Lehigh & Hudson.
Lehigh Valley.
Lehigh & New England
New York Central.

ALLEGHENY REGION

Coal & Coke.
Long Island.

NORTHWESTERN REGION

Chicago & Western Indiana.
Chicago Heights Terminal Transfer.
Chicago Junction.
Chicago, St. Paul, Minneapolis & Omaha.
Copper Range.
Spokane, Portland & Seattle.
Wichita Falls & Northwestern.

SOUTHWESTERN REGION

Memphis, Dallas & Gulf.
St. Louis-San Francisco Ry. (North Inc. West Tulsa Belt).
Missouri, Kansas & Texas Ry. (North Incl. Oklahoma Belt).
Chicago, Rock Island & Pacific.
Chicago, Rock Island & Gulf.
Houston, East & West Texas.
Vicksburg, Shreveport & Pacific.
Texas & Pacific.
St. Louis Southwestern of Texas.
International & Great Northern excluding Line Spring to Ft. Worth.
Beaumont & Great Northern.
Trans-Mississippi Terminal.
Ft. Worth & Denver Lines.
St. Louis, San Francisco & Texas—Ft. W.-R. G.-B. N. & S.
Houston & Texas Central.
Ft. Worth Belt.
San Antonio & Aransas Pass.
San Antonio, Uvalde & Gulf.
Missouri Pacific System.
St. Louis Southwestern—North.
Louisiana & Arkansas.
Gulf, Colorado & Santa Fe.
So. Pacific Lines in Texas & Louisiana (excluding H. E. & W. T.-H. T. C.).
Gulf Coast Lines.

CENTRAL WESTERN REGION

Chicago, Rock Island & Pacific.
Des Moines Union.
Peoria & Pekin Union.

Totals in the West

Liberty loan subscriptions in the Central Western region aggregated $32,933,400 on October 19, representing 94.3 per cent of the employees and officers of the lines in that territory. These figures, however, are not final, as further subscriptions from outlying points are constantly being reported. In addition to the subscriptions by the various lines in the region, the regional director's staff, consisting of 86 officers and employees, subscribed $66,300, or an average of $771 per subscriber. Out of the 31 railroads in the district, 21 have records of 100 per cent, four above 99 per cent, and all but four above 90 per cent. The Rock Island lines in the region, which have been over the top with 100 per cent for over a week, have increased the average subscriptions per subscriber to $108.57, the total subscription for the employees and officers of the Rock Island lines in the Central Western district being $2,867,500. The Oregon Short Line is the second 100 per cent road with respect to the size of aggregate subscriptions; it reported

$1,118,600 or $108.91 per subscriber. The Southern Pacific lines in the region reported the largest total of subscriptions with $5,854,700, and the Chicago, Burlington & Quincy was second with $5,426,300.. Both roads were also in the 99 per cent class.

Incomplete reports received from roads in the Northwestern region up to 10 a. m. October 21, showed total subscriptions amounting to $25,649,150, representing 93.15 per cent of the employees and officers in the territory. Out of the 38 railroads reporting, 17 were in the 100 per cent class, the largest of these being the Chicago, St. Paul, Minneapolis & Omaha with a total of $1,091,800, and an average of $123.21 per subscriber. The Chicago & North Western led in the subscriptions per road, with $4,927,500.

New York Central Rally

One of the features of the Liberty Loan campaign on the New York Central, was a "Buy Another Bond" rally at the Grand Central Terminal, New York, Friday afternoon, October 18. The rally took place in the big concourse and was attended by 15,000 persons of whom 5,000 were railroad employees.

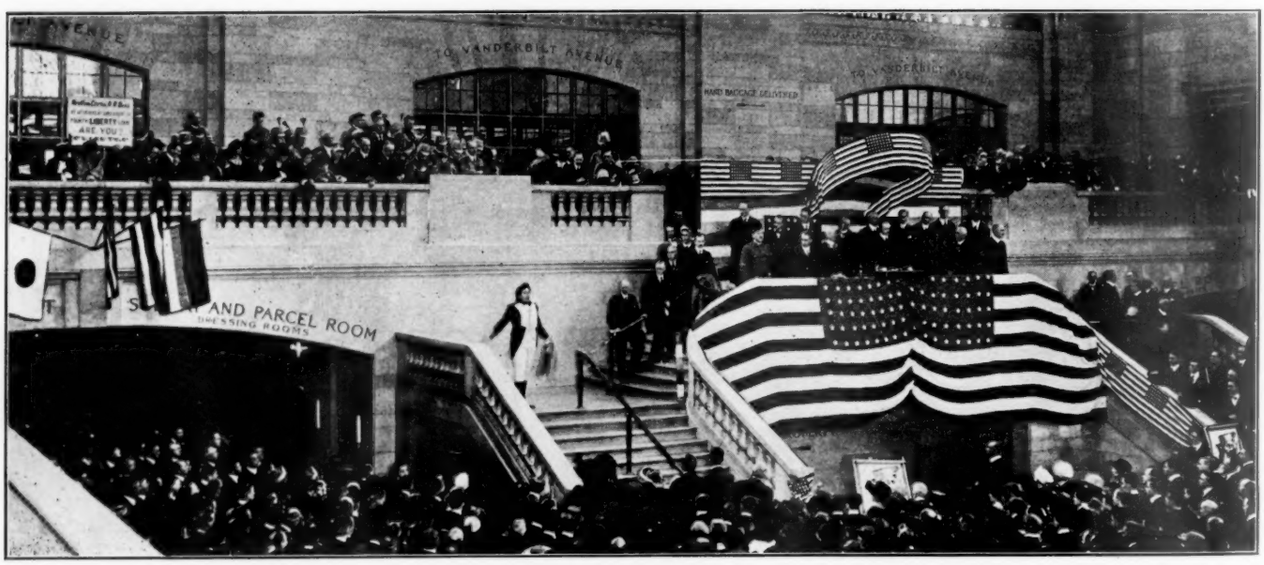
The sum of $240,700 in additional bond subscriptions was secured at the rally, of which $60,700 was signed among those on the rostrum and the remainder in small extra pledges by railroad workers. William K. Vanderbilt, Jr., president of the New York Central Railroad Company, joined in the rally from the floor with the crowd, subscribing $10,000 additional bonds, as did also A. T. Hardin, assistant regional director. A. H. Smith, who was absent from the city, telegraphed $5,000, and other $5,000 subscribers included A. H. Harris, vice-president of the New York Central Railroad Company; Ira A. Place, counsel of the New York Central; P. E. Crowley, federal manager of the New York Central, and Henry Russell, vice-president of the Michigan Central, who a few days ago lost an aviator son on the Western front.

Marcus A. Dow, general safety agent of the New York Central, presided, and among the speakers were John Kendrick Bangs, the novelist, and "Kiltie" Pat McCoy, a soldier. The New York Central shop band from Avis, Pa., was in attendance. The 40 members of this band are all active mechanics in the locomotive and car shops at Avis. The musicians, whose hands showed the callouses and grime of shop work, won high praise of musicians and generally were thought to be professionals. The band paraded Fifth avenue and also played at Herald Square.

The wildest enthusiasm characterized the rally. "Tony" Francis, engineer of the Twentieth Century Limited, was called from the entry-way to the train shed to the rostrum and in his grimy overalls sang "The Long, Long Trail," the vast throng joining in the chorus. The rally closed with an unprecedented scene, when E. L. Bartlett, holding aloft a sign labelled "Twentieth Century Limited for Berlin" headed a serpentine march around the building that gathered in over 3,000 cheering enthusiasts.

The Largest Flag in the World as it Hung in Grand Central Terminal, New York, During the Loan Campaign. The Flag Is 80 by 160 Ft. in Size.

A dramatic incident of the rally was the unfurling of revised service flags in the midst of the program. Chairman Dow asked the vast throng to "face east and uncover in honor of our fighting railroad men," and as the throng obeyed three large service flags were slowly unrolled from the east balcony.



Leon Rothier of the Metropolitan Opera House Sings the Marsellaise to an Appreciative Audience of 15,000 at the Grand Central Rally

Investigating Old Bridges For Heavier Loading*

The "Classification" of Structures by the St. Paul. Sources of Weakness and Methods of Strengthening

By C. F. Loweth
Chief Engineer, Chicago, Milwaukee & St. Paul, Chicago.

IT WAS FORMERLY the common practice, when a new engine loading was up for consideration, to investigate all the light bridges involved. Stresses throughout the structure for this loading were figured and a decision then made as to whether or not the load could be handled safely. Each time a new loading came up for consideration the process was repeated and little or no use made of the previous computations.

The present practice on the Chicago, Milwaukee & St. Paul is to make an investigation or "classification" of each structure. Its carrying capacity is determined in terms of a standard series of train loadings. New engine and car loadings that come up for consideration are classified in the same series of standard loadings, and it is then a matter of direct comparison to tell whether such proposed loadings can be handled over the various bridges safely. Every bridge which is known to be, or suspected of being, overloaded is thus classified.

In making these classifications it is necessary to establish the maximum unit stresses to which the various materials can safely be subjected. For the different materials these maximum safe stresses are taken as near the limit of strength of the material as is considered safe. The maximum safe stresses must be made low enough so there is no danger of the material yielding, altering its character or reducing the strength to carry loads after being subjected to this limiting stress for any number of times.

As an illustration of what may be considered as safe limiting unit stresses, the following are given and may be taken to apply where the design and physical condition of the structure are known to be first class:

	Wrought Iron	Steel
	Lb. per sq. in.	
Beams and girders, fiber stress in bending	22,000	26,000
Truss members, tension on net section.....	20,000	24,000
Timber stringers, fiber stress in bending.....	2,000	.....

(With suitable reduction for age for exposed timber over six or eight years old.)

In fixing upon limiting unit stresses for loading old bridges, it is necessary to take into account: (1) the character of design, (2) the character of workmanship, (3) deterioration, (4) action under load, (5) speed likely to obtain over the structure and confidence as to the observance of any speed restrictions that may be imposed, (6) element of certainty as to the assumed loading being the maximum to which the bridge will be subjected, (7) importance of traffic and the hardship which might result from temporary disablement of the structure, (8) the probability of early renewal on account of change of line, etc., (9) judgment based upon all of the factors surrounding the bridge, its location, service and condition.

Standard Loadings

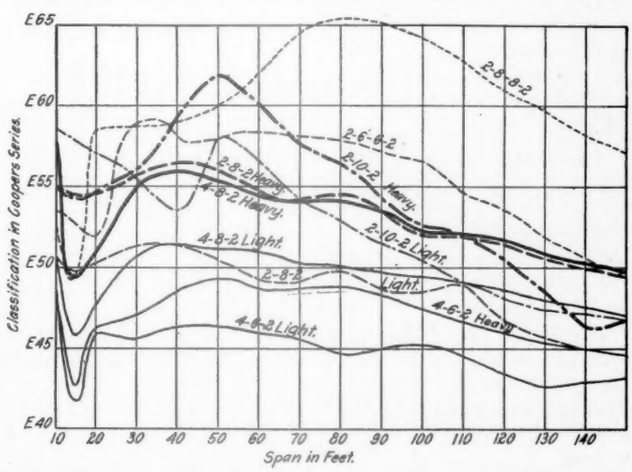
In the systematic investigation of a large number of bridges, it is necessary to have a unit loading as a basis of comparison. The familiar Cooper's series of standard train loadings furnishes a convenient and well-known basis. On account of the fixed wheel rearrangement for all the classes and the proportionality of wheel loads, it follows that the stresses in all parts of bridges on account of these loadings are directly proportional to the classes, that is, the stresses in every part of the structure, for Class E-50 loading will be just 50 times the stresses for Class E-1 loading.

In addition to the direct weight of the engine and carloads or live loads, certain other effects must also be taken into account. These include the impact action of moving loads, centrifugal forces which tend to throw a larger proportion of the load on the outside of the curve, and traction which is a force exerted along the track due to the traction of the locomotive or to setting the brakes on the train. In determining the maximum live loads which can be handled over any structure, it is necessary to make proper allowance for these extra effects of the live loads. It is also necessary to take account of the dead load stresses due to the weight of the structure itself and wind stresses due to the effect of wind pressure.

The general method of investigating any part of the bridge and making a classification is as follows:

1. The maximum allowable stress is determined which, in the simpler cases, is the cross sectional area of the member multiplied by the limiting unit stress allowed.
2. Deduct from this the stress in the part due to dead load and wind load. The remainder gives the allowable stress for the live load effect.
3. Divide this by the stress for unit live load (Class E-1) which gives the classification for allowed live load, if at rest (train standing on the bridge).
4. Divide this classification by the term which takes into account the extra effects of the live loads, due to impact and centrifugal force, the result being the classification of the allowed live load at full speed.

As an illustration of this general method, assume that a bridge member has a sectional area of 8 sq. in. Also assume



Classification of United States Standard Locomotives for Maximum Bending Moments. All Engines Double-Headed Except Santa Fe and Mallet Types. Train Load Assumed at 5,000 lb. per lin. ft.

that the circumstances warrant the limiting unit stress of 24,000 lb. per sq. in., so that the total allowable stress is 192,000 lb. Assume that the total dead load stress is 17,000 lb., and that the wind load is so small that it may be neglected. The total allowable stress available for the live load is then 192,000 lb.—17,000 lb.=175,000 lb. Assume also that the stress in the member for the Class "E-1" loading as determined by the usual method of computing stresses in bridges is 1890 lb.

*Abstracted from a paper read at the convention of the American Railway Bridge and Building Association at Chicago, October 16, 1918, by R. L. Stevens, assistant engineer, Chicago, Milwaukee & St. Paul, who collaborated with Mr. Lowell in its preparation.

The total allowable live load, if at rest is, therefore,

$$\frac{175{,}000}{1890} = E\ 92.1$$

Assume that the impact as determined by the ordinary formula for the given case equals 0.865 of the live load. Then if there is no contrifugal force and if LL represents the net live load at full speed

$$LL + 0.865\ LL = E\ 92.1$$
$$LL = \frac{E\ 92.1}{1.865} = E\ 55.2$$

which represents the classification of the member at the assumed unit stress.

Classification of Locomotives

The Class "E" loading above described, is an assumed typical loading. Actual engine and car loadings vary a great deal with the spacing of the wheels and the distribution of the weight on the various wheels. The effects of various loadings on bridges are not in direct proportion to the weight of the engine or cars, but depend on the number of wheels, the spacing of the wheels, the distribution of weight, etc. Actual engine loadings can, however, be reduced to equivalents in the standard train loadings corresponding to the different span lengths.

This is done by computing the maximum bending moments and end shears for the given train loading for each span length. These are divided by the maximum bending moments and end shears for the unit Class "E-1" loading for the corresponding span, the result being the classification of the loading. As an illustration of classifications of various loadings a diagram is given which shows the classification of several of the new United States standard locomotives.

Speed Restrictions

In the foregoing, the classification has been determined with an allowance for the effect of the maximum speed over bridges. Where speed is reduced the effects of the live load are much less and the allowance for impact and centrifugal forces, if any may be correspondingly reduced. This will, permit heavier loadings to be operated at reduced speed than at full speed.

From the tests conducted by the American Railway Engineering Association, it is found that the maximum impact which will be obtained at reduced speed is:

Less than 30 percent for a speed of 10 m. p. h.
Less than 40 percent for a speed of 15 m. p. h.
Less than 50 percent for a speed of 20 m. p. h.
Less than 55 percent for a speed of 25 m. p. h.

Where the classification of the bridge indicates that some loadings which might be desired to run cannot be handled at full speed, the classification for certain reduced speeds should be worked out.

An inspection of the diagram indicates that the effective span of the bridges and the characteristics of the engine loadings determine in a very large way whether or not the given loading can be run over the bridge, and that it is unsafe to base such conclusions simply on a knowledge of the total weight. Unfortunately it is assumed by some officers that the effect of all locomotives of the same total weight is the same. If this practice must be resorted to, the limits set must be on a very conservative basis, otherwise there will be danger of producing unsafe conditions. This practice also would not be economical because it might lead either to the premature renewal of some bridges or to the unnecessary ruling off of certain types of engines.

Where Low Classification Usually Occurs

In older bridges there are certain parts where low classifications can usually be expected. These have been found to occur most often in the lightest members of the structure and members which carry the smallest dead load stresses. Thus it is found that the floor systems of bridges have generally a lower classification than girders or the chords of trusses.

The low classification of stringers is generally in the section of the flanges near the center, in the riveting in flanges near the ends of stringers particularly if they are shallow, and in the riveting in connections of the stringers to the floor beams. In plate girders the flanges frequently show low classifications at points where the web is not fully spliced near the center and at points near the ends of cover plates. The flange riveting near the ends of girders frequently has a low classification, particularly where the girders are shallower at the ends. Webs of plate girders show low classification near the ends of the girders where there is a relatively large expanse of web, unsupported by stiffeners. The web splices near the end of the span have a low classification where only one line of rivets is used in each side of the splice.

In trusses, the posts and diagonals near the center of the span usually show a low classification. This is particularly true of the diagonals and counter-diagonals of light eye-bars or loop rods. Suspenders, or hip vertical members, frequently have a low classification. The classification of end posts and top chords of truss bridges is frequently low on account of the eccentricity of the member with respect to the location of the pin.

The pins of old truss bridges frequently show a surprisingly low classification where computations are made in accordance with the usual methods and it is necessary to take advantage of certain conditions which are more favorable than the usual assumption to help out the classification. In timber truss bridges the lowest classification usually occurs in the floor beams, truss rods and diagonal braces.

It has been found that metal bridges suffer frequently from corrosion at the top flanges of stringers and floor beams on account of the action of brine drippings from refrigerator cars. In bridges where ties are supported on shelf angles riveted to the web of the girders, the shelf angles frequently show considerable corrosion and tend to break at the root of the angle. In pin connected trusses, excessive wear sometimes takes place in the pin bearings, particularly in drawbridges.

Possible deterioration of the structure of the metal itself has been a matter of apprehension in some quarters, but it now seems to be recognized that no such integral deteriorating action takes place where the bridge has not been subjected to excessively high stress. If crystallization is found in the metal of a structure, it probably was there at the time the structure was built, on account of improper methods of manufacture of the material. It may, therefore, be taken as a certainty that iron and steel bridges, if not reduced in section by rust, etc., and if not shaky on account of inadequate bracing, are fully capable of carrying the figured loads at reasonable limiting unit stress provided they are carefully inspected and properly maintained.

Strengthening Bridges

The strengthening of light bridges may be either a matter of reinforcing minor details which are found to limit the carrying capacity of the bridge, or may consist of heavy reinforcing in an attempt to increase the strength of the structure throughout.

The minor strengthening can usually be done at small expense and is an economical method of getting considerably greater life out of bridges. Heavy reinforcing may or may not be economical as it involves doing work in the field which is expensive, while the maintenance of traffic during the time the work is in progress, which involves some risk to traffic, is unusually expensive. On very large bridges where the cost of replacing amounts to a very large sum, some very extensive strengthening operations have been carried out economically. In making plans for reinforcing bridges, it is usually preferable to add new material to the structure so that the existing structure is not temporarily weakened, rather than to remove parts and substitute heavier ones, though the latter must sometimes be done.

In plate girders the top and bottom flanges may be strengthened by additional cover plates, particularly at points where the web is spliced and not effective for carrying its proportion of the bending stress. Where there are no cover plates on the girders, cover plates of desired length can be added. Plate girders can be doubled up to make deck spans, using three or more girders per span at small expense, thereby using up light girders and providing bridges of large carrying capacity. Where waterway or other undercrossing conditions permit, timber bents can be placed under spans to strengthen them.

Where the rivets in the flanges of girders show low classification, larger rivets can be substituted, or, where the rivet spacing permits, additional rivets can be driven. Where the web plates give a low classification, additional stiffeners can be placed in the panels near the ends of the girders to give additional support to the web. Shelf angles can be strengthened by short vertical stiffeners beneath them. Where web splices with low classification occur, these can be replaced with wider splice plates with additional rows of rivets in the splice.

In through bridges the stringers can be reinforced by additional riveting, by the placing of additional stringers either timber or steel, and by shifting existing stringers to secure better distribution of the load. Where stringers are spaced so that some stringers do not carry their full proportion of load, it is possible to introduce cross bracing so that all the stringers in the panel act together to carry the load.

Floor beams can be reinforced by cover plates or angles added to the flanges by additional riveting, or by shifting the stringers toward the trusses to reduce the bending in the floor beams. In very old bridges, floor beams are frequently of much lower classification than the remainder of the bridge and can sometimes be replaced with entirely new floor beams at a reasonable expense so as to get additional life out of the remainder of the structure.

In trusses the diagonals and counters can usually be reinforced with additional bars or rods with loops over the truss pins and connected by turnbuckles to provide adjustment. Similarly, bottom chords of eye-bars can be reinforced with additional bars with yokes bearing on the heads of the original eye-bars.

End posts of through bridges, having low classification due to eccentricity can be strengthened by placing angles or plates on the sides of the members, so as to reduce the eccentricity.

Where pins have low classification, it is sometimes possible to move the members on the pin to reduce the bending. In some cases, diaphragms placed inside of built-up numbers will relieve bending on the pin. The pins themselves can be strengthened by replacing with high carbon or special alloy steel pins of the same size, or if additional strength is required, by boring out the pin holes and putting in larger pins.

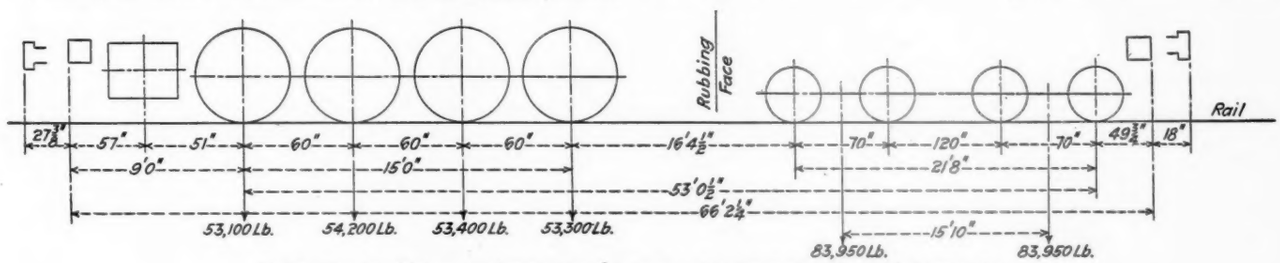
The cost of strengthening bridges varies with the size of the job, the amount of staging required, the amount of shifting of members required to reach different portions of the work, the size of the crew available, the distance traveled by the crew, the tools available, etc. In a general way, it has been found that the cutting out and replacing of rivets on ordinary strengthening jobs costs from 25 cents to 75 cents each and drilling and driving new rivets 50 cents to $1 each; that is, the cost of such work will be given by the total number of rivets driven at these unit prices, plus the cost of additional material required.

With the maintenance of old and light capacity bridges, the question continually arises whether it is more economical to strengthen the structure or renew it. As a general proposition it would be permissible to spend each year for strengthening an amount equal to the interest on the investment in a new bridge, less the cost of the additional maintenance required by the old bridge on account of the greater attention it receives.

It must be recognized, of course, that a newly designed and heavy structure is preferable to a lighter structure. It is possibly true that in case of a serious accident on a bridge, a light structure might be destroyed while a heavy new structure might withstand the same treatment without being seriously disabled. Such consideration must be taken into account in shaping the general policy in keeping light bridges in service.

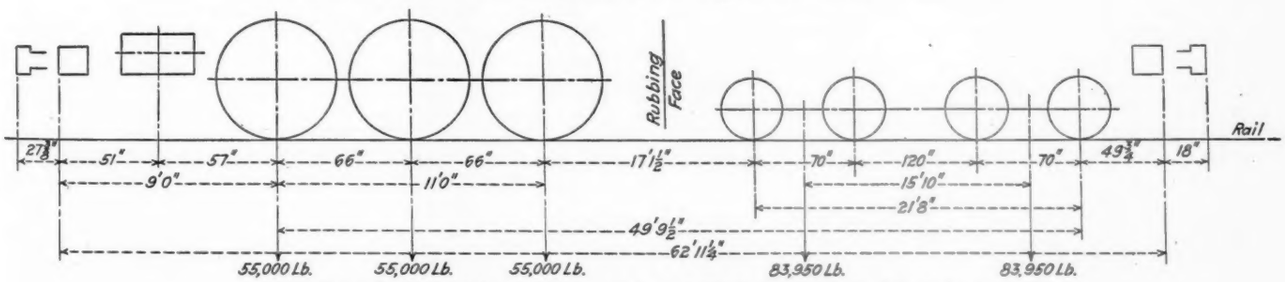
Clearance and Weight Diagrams for Standard Locomotives

FOR THE PURPOSE of presenting in a convenient manner the clearances of the standard locomotives of the Railroad Administration, F. P. Pfahler, chief mechanical engineer of the Division of Operation of the United States Railroad Administration, has prepared the diagrams shown in connection with this article. They are given for the light and heavy Mikados and the Eight-wheel and Six-wheel



Eight-Wheel Switcher - Weight in Working Order. 8,000 Gal. Tender:- Freight Trucks.

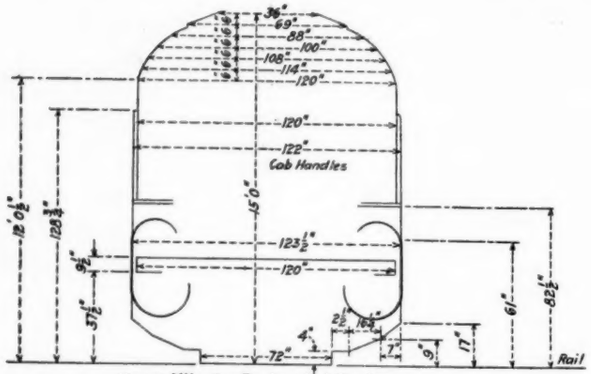
Wheel Loading and Spacing for the Standard Eight-Wheel Switcher



Six-Wheel Switcher - Weight in Working Order. 8,000 Gal. Tender - Freight Trucks.

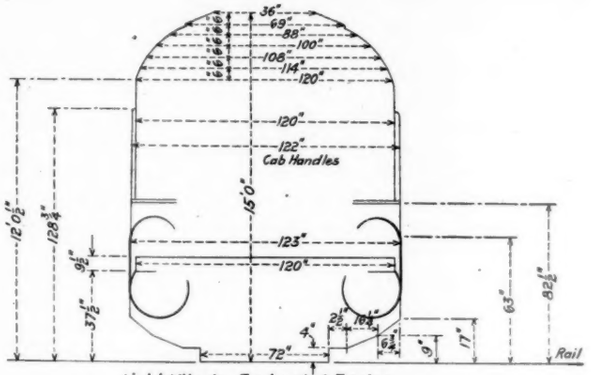
Wheel Loading and Spacing Diagram for the Standard Six-Wheel Switcher

switchers and represent the correct diagrams for clearances and give the official distribution of weights of the different locomotives. These diagrams should be of assistance to the men on the roads using the standard locomotives.



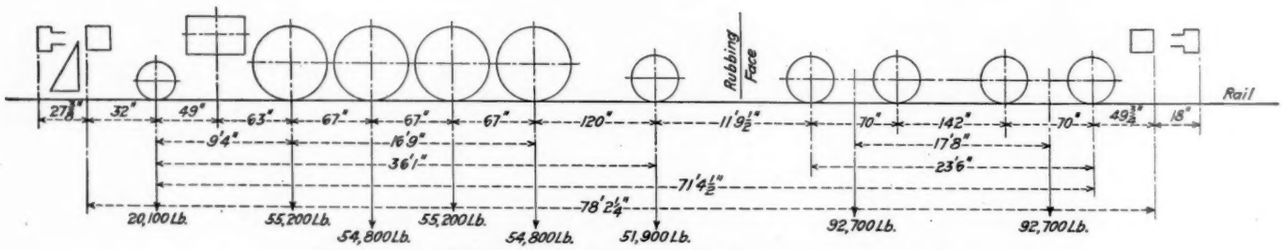
Heavy Mikado - For Loaded Engine.
For Light Engine, Heights Will Be About 1½" Greater.

Clearance Diagram for the Standard Heavy Mikado



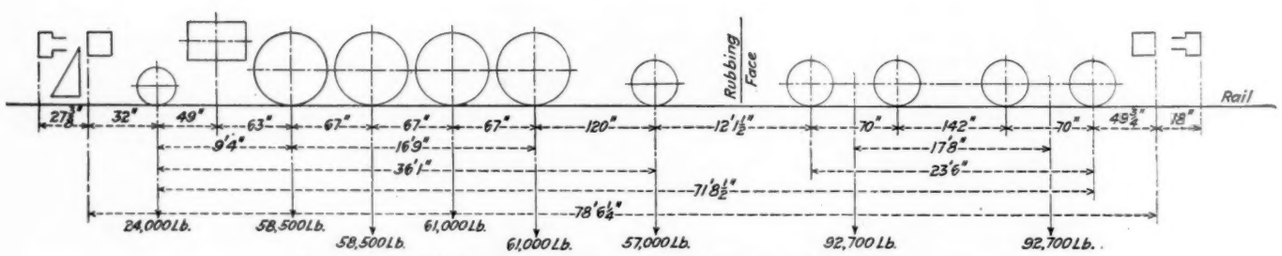
Light Mikado - For Loaded Engine.
For Light Engine, Heights Will Be About 1½" Greater.

Clearance Diagram for the Standard Light Mikado



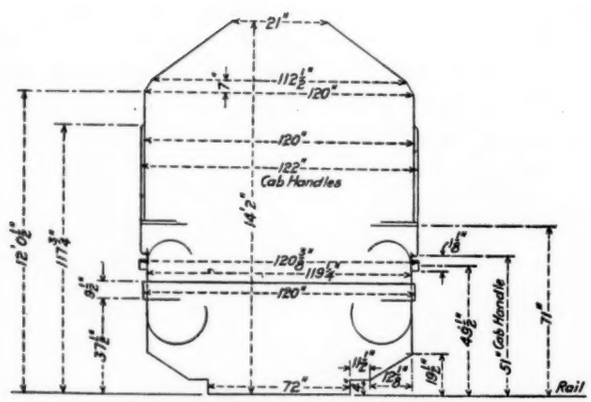
Light Mikado - Weight in Working Order. 10,000 Gal. Tender - Freight Trucks.

Wheel Loading and Spacing Diagram for the Standard Light Mikado



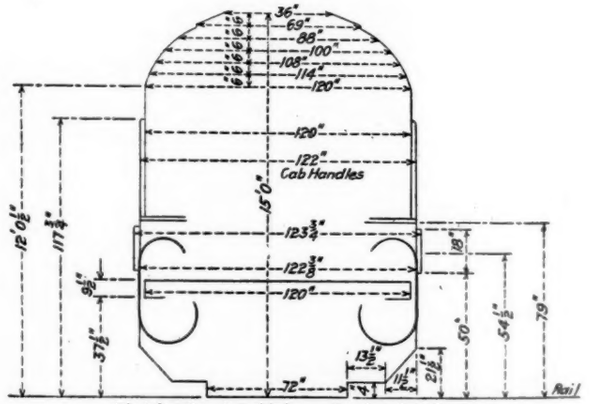
Heavy Mikado - Weight in Working Order. 10,000 Gal. Tender - Freight Trucks

Wheel Loading and Spacing Diagram for the Standard Heavy Mikado



Six-Wheel Switcher - For Loaded Engine.
For Light Engine, Heights Will Be About 1½" Greater.

Clearance Diagram for the Standard Six-Wheel Switcher



Eight-Wheel Switcher: - For Loaded Engine.
For Light Engine, Heights Will Be About 1½" Greater.

Clearance Diagram for Standard Eight-Wheel Switcher

Joint Conference on Grain Handling and Weighing

Much Attention Was Given to Grain Leakage and the Construction of Box Cars to Prevent It

A CONFERENCE to further the interests of uniformity in the practices of terminal grain weighing departments was held at Milwaukee, Wis., on September 25. Among those in attendance were terminal weighmasters from many important grain handling points, the Committee on Grain Weighing of the National Scale Men's Association, and several representatives of railroads and other interests concerned. H. A. Foss, board of trade weighmaster at Chicago, acted as chairman of the conference.

As a result of the deliberations, resolutions were passed in which specific recommendations were made as to the practices the members of the conference thought should be adopted to improve the present conditions. In the matter of car seals, it was stated that the seals used by some of the carriers on the doors of box cars bear duplicate identification marks which make it possible to seal and reseal cars in a given yard or district many times without any changes in the identification marks to show that the original seals placed on the doors have been broken and the cars resealed. On the other hand, the use of consecutively numbered seals, which many of the carriers have adopted, makes it practically impossible to break the seals of a car without the facts being indicated either by an examination of the seals on the doors or by an examination of the seal records of the carriers and terminal weighmasters. The carriers were urged to adopt seals that are consecutively numbered, no two bearing the same identification marks.

The relation of rough handling of cars in transit to leakage of grain was considered. Cars often receive rougher treatment at terminals and interchange points than during road haul movement. It is apparent that much of the rough handling of cars in switching, either by switch engines or over gravity tracks is unnecessary and avoidable. Since such rough handling of cars causes much of the leakage of grain the officials under whose jurisdiction the switching of cars at terminal markets comes were urged to enforce greater care in this operation.

Construction of Box Cars to Prevent Leakage of Grain

Several recommendations were made regarding practices in the construction and repair of cars which would tend to reduce grain leakage. It was stated that investigations made by terminal grain weighmasters as well as grain leakage statistics compiled by terminal grain weighing departments show that a large majority of all the leaks of grain from box cars occur between the outside car sheathing and the car sills, due to the tendency of the sheathing to spring away from the sills under load. Examination of box cars used for transporting grain indicates clearly that the nails used to secure the sheathing boards to the sills are inadequate since they do not effectively and permanently hold the sheathing tightly to the sills under the stress and strain to which cars are subjected in switching and handling. A few of the roads have realized the inadequacy of nails alone for holding the sheathing in position, and some of the grain carrying lines have experimented with metal strips to secure it in place. These are of two designs, one consisting of flat bars of iron fastened by means of bolts, the other of an angle iron which is also bolted to the sills. The flat bars were not considered as wholly satisfactory for this purpose. It was resolved that the carriers and builders of box cars be urged to find other methods of securing the sheathing to the car sills more effective than nailing and that such improved methods should be applied to the box car equipment now in use as far as it is practicable to do so.

The effectiveness of grain strips in box cars in fulfilling their function of freeing any grain lodged behind the inside linings and thereby making it accessible to the unloaders was considered. Extensive examination of cars used for carrying grain showed that a large percentage of the grain strips are warped, twisted and loose. This condition is so prevalent in the older cars as to indicate need for more durable and serviceable grain strips and better methods of securing them in position. It was noted that some cars of recent construction are equipped with strips of much heavier design than are generally used in the older cars, these strips being bolted in position instead of being nailed. The railroads and car builders were urged to investigate the question of grain strips with a view to adopting a type that will perform its function better than those now in use, and for the purpose of developing better methods of securing the strips in position.

Much of the leakage of grain between the sheathing and the sills was attributed to the grain sifting behind the lining through cracks and crevices in the belt rails where the brace rods and side posts pass through. If grain can be prevented from sifting through the belt rails into the pockets of the lining, leakage between the sheathing and the car sills is materially reduced. The lodging of grain in the pockets of the linings, where it is often inaccessible to the unloaders, not only causes loss of grain, but results in the abuse of the car by trespassers in railroad yards who damage the equipment in trying to get the grain thus lodged. The railroads were urged to find a means of filling all cracks in the belt rails where the rails do not fit tightly around the side posts and brace rods, to make the inside wooden lining of cars grain tight. Such methods should be applied to cars now in use which are equipped with inside wooden lining as well as new cars. Furthermore, openings should be provided to admit the free passage of any grain that may lodge behind the lining.

The conference protested against the misuse of grain doors. It was recommended that unloaders in releasing the grain from cars should detach the grain doors from the top of the doorway section by section wherever practicable. Grain shippers should not use nails for securing grain doors to the doorposts larger than the 16 penny size and no more nails than are necessary. The purchasing agents of the railroads were urged to revise their specifications for grain doors or to take such other steps as might be necessary to stop the growing practice of using poor, culled, rotted or other unsuitable lumber in the manufacture of such doors.

Inspection of Grain Cars and Scales, Weighing and Handling of Cars

The marked variation in the percentage of cars reported as leaking grain upon arrival by the weighing departments at the various terminal markets has resulted in much criticism and has tended to throw discredit on the reliability of all reports of grain leakage. It is contended by many that these variations are due in large part to differences in the methods employed in searching for evidence of leakage. A committee was appointed to determine the most effective method of securing and recording reliable evidence of leakage from grain cars, to the end that greater uniformity of practice might be brought about and that steps might be taken to induce the carriers to adopt similar methods for the guidance of their car

inspectors when inspecting cars for leakage in transit. It was recommended that cars should, if possible, receive daylight inspection and where grain leakage is found an effort should be made to determine whether the loss is considerable or slight and the findings reported. A committee was also appointed to draft rules to govern the testing of grain scales.

Regulations for the guidance of elevator designers and builders in the installation of scales and the equipment used to weigh and handle grain to and from cars, and rules for the guidance of the loaders and unloaders of grain and terminal weighmasters were also adopted. For the guidance of those interested in grain weighing, standard weight supervision was defined. It was recommended that certificates issued for weights determined under standard supervision should state on the face that such supervision governed the weighing. It was the sense of the meeting that it is incumbent upon terminal grain weighing departments to inspect outbound cars as well as inbound cars.

Bad Order Car Situation

A GENERAL SUMMARY of the bad order car situation taken from the reports of the railroads to the Division of Operation of the Railroad Administration for 10 weeks ending September 21, are interesting in that they show a steady decrease in the number of bad order cars. At the beginning of this period there were 173,771 cars in bad order, or seven per cent of the total revenue cars on the roads then under the jurisdiction of the Railroad Administration, and on September 21 there were 153,798 or 6.2 per cent, a decrease of over 11 per cent. In order to increase the car supply it has been the practice on nearly every railroad to concentrate attention on bad order cars requiring light repairs. This is reflected in the table giving the summary of the conditions, the light bad order cars decreasing from 87,283 to 62,842. At the same time the heavy bad order cars have been kept well in hand.

The distribution of the bad order cars amongst the different classes by regions is shown in another of the tables as of September 21. Box cars comprise 42.5 per cent of the total number, hopper cars 18.2 per cent, gondola cars 25.2 per cent, and the remaining classes all vary below four per cent.

CLASSIFICATION OF BAD ORDER CAR SITUATION AS OF SEPTEMBER 21, 1918, BY REGIONS

Class	Eastern	Alleghany	Pocahontas	Southern	Central Western	Southwestern	Northwestern	All regions
Box	20,912	9,986	1,247	5,570	8,272	3,526	15,449	64,942
Refrigerator	2,018	314	17	260	1,174	239	1,315	5,337
Stock	1,037	234	106	422	2,108	502	1,329	5,738
Hopper	12,418	9,960	1,324	1,454	457	402	1,917	27,932
Gondola	16,637	6,574	1,660	3,052	6,051	1,447	3,197	38,618
Flat	1,512	531	228	1,051	658	322	1,800	6,102
Coke	330	635	103	126	49	6	95	1,344
Miscellaneous	969	267	182	479	814	500	574	3,785
Total	55,833	28,501	4,867	12,394	19,583	6,944	25,676	153,798
Percentage B. O. cars	7.0	7.1	5.4	5.1	5.2	3.2	6.6	6.2

It will be seen from this table that the greatest bulk of the bad order box cars are in the Eastern and Northwestern regions. In the Northwestern region they comprise 60 per cent of the cars in bad order. In proportion to the number of cars in the Allegheny region the number of bad order hopper cars is, of course, high.

Referring again to the table showing a summary of the bad order car conditions it will be noted that during the 10 weeks in question the number of employees in the car department increased from 134,615 to 146,004, with high weeks of over 150,000. This is an increase of about 14 per cent over the number of men employed a year ago at this time. It is interesting to note that with this increase in the number of employees the average number of bad order cars repaired per working day has not kept pace with the increase in the number of employees, although for the week ending September 14 there was a high record of 99,009. The lowest number reported is for the week ending August 10, when

TEN WEEKS' STATEMENT OF CAR CONDITION REPORTS

	Week ending July 20	July 27	Aug. 3	Aug. 10	Aug. 17	Aug. 24	Aug. 31	Sept. 7	Sept. 14	Sept. 21
Number of roads represented	158	158	143	143	143	143	143	140	139	139
Total revenue cars	2,474,787	2,503,828	2,492,749	2,494,408	2,480,792	2,484,381	2,493,145	2,407,798	2,493,730	2,493,074
Bad order cars	173,771	179,670	175,781	173,771	169,539	164,826	157,339	158,133	155,899	153,798
Heavy repairs	86,488	93,533	93,287	94,796	95,798	96,432	91,656	92,301	91,134	90,956
Light repairs	87,283	87,137	82,494	78,975	73,741	68,394	65,683	65,832	64,765	62,842
Percentage of bad order cars	7.0	7.1	7.1	6.9	6.8	6.6	6.3	6.6	6.2	6.2
Ave. B. O. cars repaired per working day	97,719	96,246	97,348	95,973	96,668	96,681	97,027	96,346	99,009	97,077
Heavy repairs	10,292	9,347	9,744	11,961	9,833	10,003	10,359	9,750	10,473	10,442
Light repairs	87,427	86,899	87,604	84,012	86,835	86,678	86,668	86,596	88,536	86,635
Number of cars transferred to other shops	346	215	459	290	1,363	1,750	1,862	2,188	2,501	1,791
Number of employees	134,615	137,360	138,659	140,308	142,895	146,677	150,042	150,006	145,141	146,004

DETAILS OF THE BAD ORDER CAR SITUATION AS OF SEPTEMBER 21, 1918.

	All regions	Eastern	Allegheny	Pocahontas	Southern	Central Western	Southwestern	Northwestern
Number of railroads	139	42	15	3	24	20	18	17
Total revenue cars	2,493,074	789,811	398,935	88,869	242,743	372,349	214,266	386,101
Total bad order cars	153,798	55,833	28,501	4,867	12,394	19,583	6,944	25,676
Heavy	90,956	34,553	20,772	3,125	7,012	11,751	4,052	9,691
Light	62,842	21,280	7,729	1,742	5,382	7,832	2,892	15,985
Percentage of bad order to revenue cars	6.2	7.0	7.1	5.4	5.1	5.2	3.2	6.6
Railroads having four per cent bad order or less	61	9	6	1	12	12	14	7
Railroads having more than four per cent bad order	78	33	9	2	12	8	4	10
Number of cars damaged in trains	19,695	2,899	1,832	268	938	6,394	860	6,504
Cost of repairs { Labor	$121,056	$27,528	$19,378	$3,643	$15,097	$35,791	$7,050	$12,568
Cost of repairs { Material	$165,827	$41,445	$27,346	$5,960	$21,471	$44,363	$8,447	$16,795
Number of carr damaged in yards	6,716	2,209	1,043	105	404	584	1,609	762
Cost of repairs { Labor	$58,570	$19,614	$11,355	$2,190	$5,556	$6,578	$4,774	$8,503
Cost of repairs { Material	$82,258	$27,533	$16,442	$3,990	$9,820	$8,760	$6,418	$9,295
Average number bad order cars repaired each working day	97,077	29,741	10,888	4,507	7,234	12,722	10,787	21,198
Heavy	10,442	2,843	820	274	1,205	2,184	857	2,259
Light	86,635	26,898	10,068	4,233	6,029	10,538	9,930	18,939
Total number cars remaining to be repaired in contract shops	11,649	7,750	1,699	2,092	0	110	0	88
Total number cars in contract shops undergoing and awaiting repairs	4,267	2,652	421	392	532	128	0	142
Number of cars transferred from one road to another to help reduce bad orders	1,791	1,312	163	100	216	0	0	0
Total number of employees	146,004	41,294	19,532	5,227	18,915	25,453	13,403	22,180
Net total increase during the week	1,170	648	6 (dec.)	13	64	183	20	284
Total number of employees for same week of last year	128,457	35,715	15,904	4,948	17,244	22,182	14,466	17,998

95,973 cars were repaired per working day with 140,308 employees.

It is also interesting to note the number of cars that have been transferred from one road to another to reduce congestion. This has as a rule steadily increased, except that during the week ending September 21 a less number of cars was transferred than for the previous three weeks. It shows the improvement in co-ordination of the work.

A study of the more detailed freight car condition report for the week ending September 21 shows that during the week 26,411 cars were damaged in trains in the yards at a cost of $427,710. While this number is a little over one per cent of the total revenue cars, an analysis shows that in the Central Western and Northwestern territory the number of cars damaged in this manner was about two per cent of the total number of revenue cars in that territory. In these regions there is considerable mountainous territory and it may be possible that the general air brake conditions of the cars are responsible for the proportionately large number of cars damaged in this manner.

One of the tables gives details of the bad order situation in the various regions for the week ending September 21.

"The Railroad Bureau for Brickbats and Bouquets"

What the Public Sometimes Writes About to the Bureau for Suggestions and Complaints

By Theodore H. Price
Actuary to United States Railroad Administration

As you fall unconcernedly asleep in a Pullman car, which, with all its drawbacks, is the least uncomfortable means of traveling at night on land that has as yet been devised, did you ever reflect upon the number of persons and the complexity of the organization upon which you are dependent for the safety and luxury in which you are able to make your journey? The engineer and the fireman, the conductor and the brakemen, the Pullman conductor and the porter, the steward in the dining car and the waiters are all more or less in evidence, and of their presence and the service they render you may be more or less conscious, but behind them and directing their activities is an unseen host of others upon whose vigilance in the performance of their duties your life and comfort depend.

There is the train despatcher and the telegraph operators, the track walker who patrols the right of way day and night, and the section gang who must always be ready to repair any defects, the switchmen, and the inspector who used to go about tapping the car wheels with his tell-tale hammer at the end of each division, the "hostler" who takes care of the engine and the machinist who repairs it, the car cleaners, the iceman, the commissary chief who provisions the dining cars, the ticket agent and the station master, the "red cap" and the baggageman; if any one of these fails in his appointed task, the passenger is almost certain to suffer or be inconvenienced. Back of these again there used to be the executive officers, the president, the various vice presidents, the general manager, and the superintendent, with scores of other functionaries who were the objects of relentless public criticism if their subordinates were careless or inefficient. Now that the railroads are under the control of the government the operative duties of the railroad president and the vice-presidents devolve upon a federal manager and his assistants. They are in turn responsible to a regional director, who is the representative of Director General McAdoo at Washington; but in other respects the operating organization is not much changed and, because some people, forgetting the exigencies of the war, assume that the government is omnipotent, they are now disposed to be more, rather than less, exacting in demanding perfection of service from the machine that is called the American railroad system.

Composed, as this machine is, of literally millions of mechanical parts whose functioning depends upon the co-ordinated watchfulness and care of thousands of fallible human beings, it is really surprising that more accidents do not occur, and that the reaction of man upon man does not result in irritation oftener than is the case. When we consider that a loose spike, a defective rail, a misplaced switch, or a misread signal may precipitate a trainload of people into eternity, and that an innumerable number of spikes, rails, switches, and signals, to say nothing of the air brakes, couplings, electric wires, and steam and water supply pipes, with an engine having about 15,000 separate parts that make up a passenger train must all be as they should be if we are to reach our journey's end successfully and on time, it is little short of marvelous that travel is as safe as it has become and that under the strain to which they are subjected railroad employees are not oftener careless and impatient. It is greatly to the credit of the executive officers who through three generations had built up the fabric that is called the American railroad system that they should have succeeded in developing the *esprit de corps* by which the men under them were animated. This had been acomplished in the face of many difficulties, including especially a mass of hampering legislation in 48 different states; and when, in order to meet the exigencies of the war, it became necessary for the President to put the transportation agencies of the country under the control of Mr. McAdoo, his first care was to preserve and increase the spirit of idealism in the performance of their duty that was characteristic of the Americans who had become proud of being called "railroad men."

There were not wanting those who predicted a speedy decline in what has come to be called the "morale" of the railroad army, and there were some who, professing to discern such a decline, persuaded others to look through glasses that were darkened by a defeatist self-interest in the failure of government control.

The director general, confident as he was of the loyalty of the men, did not share this pessimism, but feeling nevertheless that it was his duty to ascertain whether it had any basis, he determined, with his customary directness, to ask the public to tell him frankly how and where the service could be improved.

Accordingly he issued an order establishing a Bureau for Suggestions and Complaints, and on the third of September, 1918, the following notice was posted in every station and passenger coach under the control of the United States Railroad Administration:

To the Public:

I desire your assistance and co-operation in making the railroad service while under Federal control in the highest possible degree satisfactory and efficient.

Of course, the paramount necessities of the war must have first consideration.

Our gallant sons who are fighting in France and on the high seas cannot be adequately supported unless the railroads supply sufficient transportation for the movement of troops and war materials and to keep the war industries of the nation going without interruption.

The next purpose is to serve the public convenience, comfort and necessity to the fullest extent not incompatible with the paramount demands of the war.

In order to accomplish this, criticisms and suggestions from the public will be extremely helpful, whether they relate to the service rendered by employees and officials or impersonal details that may convenience or inconvenience patrons of the railroads. It is impossible for even the most vigilant management to keep constantly in touch with local conditions and correct them when they are not as they should be unless the public will co-operate in pointing out deficiencies and dis-service when they exist, so that the proper remedies may be applied.

I have therefore established a Bureau for Suggestions and Complaints in the Director General's office at Washington, to which the public is invited to resort.

Aside from letters of complaint and suggestion, the public can render a genuine service by sending letters of commendation of employees who are conspicuously courteous and efficient in the performance of their duties. Nothing promotes the esprit of a great organization more than recognition from time to time of these employees who perform their duties faithfully and commendably.

It is requested that all communications be brief and explicit, and that the name and address of the writer be distinctly written.

Also give the time of day or night, the number of the train, the name of the railroad, and, if possible, the name of the employee whose conduct is complained of or whose services are commended, together with such other information as will enable me to take appropriate action.

To deal with the letters which this notice was expected to elicit, five trained men were selected and put under the direction of the writer. They include Ballard Dunn, assistant actuary to the United States Railroad Administration and formerly special representative of president's office, Union Pacific Railroad, Omaha; J. F. Jarrell, formerly editorial writer on Kansas City Times and Topeka Capital, and later with the Atchison, Topeka & Santa Fe as editor of its industrial and agricultural publications and in general charge of publicity matters; T. T. Maxey, formerly of the Chicago, Burlington & Quincy as advertising agent; E. H. Lamb, formerly general agent of the Chicago & North Western at Sacramento, Cal.; and Frank F. George, formerly secretary to the actuary to the United States Railroad Administration.

This Bureau for Suggestions and Complaints, which a newspaper man has facetiously dubbed the "bureau of brickbats and bouquets," is Mr. McAdoo's latest application of his motto "The public be pleased." It has now been in existence long enough to make it possible for those in charge of it to draw a cross section of the composite public mind as revealed in the many thousands of letters that have been received.

The writers of these letters unconsciously divide themselves into two classes—one comprising those who are temperamentally censorious, and another which includes the people who believe that praise is a duty and that "criticism is best defined as an emphasis of the desirable."

The rhyme which runs—

Between the optimist and pessimist the difference is droll,
The optimist the doughtnut sees—the pessimist the hole

finds fresh application in not a few contrasting letters upon the same subject, but between the two extremes there are many who are evidently inspired by a public-spirited desire to improve the service that the railroads are trying to render and a patriotic willingness to subordinate their own convenience and comfort to the primary purpose for which the railroads were taken over, namely, the winning of the war. That this latter class is in a very large majority is one of the reassuring facts revealed by the experience of the Bureau for Suggestions and Complaints.

Some of the newspaper writers who have been vociferous in proclaiming the discourtesy and indifference of "Uncle Sam's railway employees" would perhaps be surprised at the number of letters of commendation that have been received, and while a few of them are no doubt the result of auto-suggestion, it is evident that as a class the men and the increasingly large number of women who compose the "railway army" of the United States are loyal and enthusiastic, anxious and willing to give the best that is in them to the work in which they are enlisted.

It may be appropriate to mention a letter from a man who says that "I know that many will complain of the discourtesy of railway employees to the public, but I desire to file a complaint in regard to the discourtesy of the public to railway employees," as emphasizing the need of reciprocity in politeness in a way that many travelers would do well to ponder, for it is undoubtedly true that some of the questions that railroad men have to answer and some of the demands made upon them are absurd and exasperating to a degree that even Job would have resented.

Of the letters received probably three-fourths complain of conditions that are presently unavoidable or of regulations, the reasonableness of which is not apparent to the casual traveler who fails to appreciate or understand the complexity of the railroad machine or the necessity of protecting the public against the ignorance, carelessness, and selfishness of some and the dishonesty of others who feel that it is no sin to evade the payment of their fares or "get the best of the railroad."

Common Complaints

What may be called the conventional complaints relate chiefly to a few subjects which are dealt with, as follows, in the order in which they seem uppermost in the public mind and have elicited the largest number of letters.

They are:

1. *The crowded condition of the stations and cars and the delay encountered in purchasing tickets.*—Under this heading there may be considered practically all the complaints which arise as a result of the unprecedented increase in the passenger traffic of late and the shortage in the ticket-selling forces that is the result of the draft and the high wages which have attracted many experienced railroad men into other positions where they can, for the present at least, earn more than it is possible for the railroads to pay. The enormous increase in passenger traffic with which the railroads are now contending is not perhaps generally appreciated. The complete comparative statistics for June, 1917, and June, 1918, are not yet available, but a statement which includes the passenger traffic of 208,988 miles of railroads out of a total mileage of nearly 300,000 miles shows that 3,621,088,633 passengers were carried one mile in June, 1918, as compared with 3,049,803,635 passengers carried one mile in June, 1917. The increase of 571,285,028 passengers carried one mile is equal to 18.17 per cent, and if it be assumed that the average journey of each passenger was 50* miles, which is probably an approximation to the fact, we shall be justified in concluding that the railroads reporting had to carry 11,425,700 more persons in June, 1918, than during the same month in the previous year, and that there was an equal increase in the number of tickets sold. As the roads reporting include only about two-thirds, but the most important two-thirds of the total mileage in the United States, it is not improbable that there was an aggregate increase of 15,000,000 in the number of persons traveling and the number of journeys made throughout the United States in the month of June, 1918, as compared with June, 1917. This means an increase of 750,000 in the number of persons traveling each day. The average passenger car will seat 50 people, and to carry 750,000 persons 15,000 cars filled to capacity would be required. They are not to be had. They could not have been built even if they had been ordered. The labor and material necessary are unobtainable. According to the figures of the Interstate Commerce Commission there were (excluding parlor and sleeping cars) only 40,870 passenger cars of all sorts in the

*According to the figures of the Interstate Commerce Commission the average journey per passenger in 1916 was 34.73 miles, which figure, if applied to the returns for 1918, would indicate an increase of over 21,000,000 in the number of persons traveling during the month of June, 1918, as compared with June, 1917. Inasmuch, however, as this year's figures include the movement of many troops over long runs, I have preferred to avoid an overestimate by assuming that the length of the average journey was 50 miles.

United States in the year 1916, and the necessity of crowding these cars in order to transport those who now desire to travel will at once be apparent even to the statistical tyro.

An average of about 1,100,000 troops a month is now being carried by the railroads on orders from the war and navy departments. A great many other soldiers and sailors are traveling on their own account and at their own expense. The mothers, fathers, wives, sweethearts, and friends of these men have also been traveling to visit them at the camps at which they were stationed. The high wages that are being paid in industry generally, and particularly in the shipyards and munition factories, the agricultural prosperity that is the result of $2 wheat and 30-cent cotton have made many of those who were not previously in the habit of traveling feel able to "take a trip," and they have yielded to the impulse. Concurrently the force of ticket sellers has been depleted by draft or resignation to accept other and better-paid positions, and those who were left have had to deal with the unprecedented increase in the passenger traffic that the figures given disclose.

Under the circumstances it is not surprising that sometimes long lines of people are to be found waiting at important ticket offices. It is not possible for untrained men to sell railroad tickets. This work requires a knowledge of routes, rates, timetables, and connections that can only be acquired by experience and an ability to make change promptly and accurately and to be self-controlled when tired or exasperated that cannot be learned in a minute. In an effort to meet the public demand the United States Railroad Administration has opened schools in some of the larger cities for the education of women as ticket sellers, and not a few graduates have been passed from these schools into active service, but the number of women who have applied for this instruction is not large, and after making allowances for the drain that will be caused by the pending draft it seems unlikely that the ticket-selling force can be appreciably increased in the near future.

These conditions are frankly stated that the public may have some idea of the situation and refarin from unnecessary travel. The increase in passenger rates seems to have had no effect. Mr. McAdoo has appealed to the public to avoid pleasure traveling, but he seems to have been unheeded. It is not possible for the United States Railroad Administration to put a quart in a pint bottle. It cannot carry the soldiers who must be transported comfortably and provide the public with the luxury and accommodations to which they have been previously accustomed. The former is an imperative duty, and this is written that those who complain of the crowded cars and the delays at ticket offices may understand that some discomfort and inconvenience are unavoidable. Universal mileage books, good in the hands of bearer upon any railroad under the control of the director general, have been devised and are now on sale. Those who use them will avoid the delay usually encountered in the purchase of tickets, but the best method of relieving the situation is to avoid unnecessary travel and preach the gospel of "winning the war by staying at home" among your friends by both precept and example.

2. *The surcharge of one-half cent a mile now made for transportation in parlor or sleeping cars, which charge is in addition to the regular Pullman fare,* is another thing that provokes many complaints. The reasonableness of this charge will be appreciated in the light of the following comparisons: With one person in a berth the average sleeping car will accommodate but 27 people, whereas a modern coach has seats for approximately 60 people. Upon the average, a passenger in a sleeping car occupies 13½ square feet of space, whereas a passenger in a modern steel coach occupies but 7½ square feet. The average dead-weight per seat in a sleeping car is 3,250 pounds, whereas the average dead-weight per seat in a modern steel coach is but 1,400 pounds. The passenger capacity of a sleeping car is, therefore, less than half of the passenger capacity of the average coach and the engine load per passenger is more than double in the case of Pullman cars that are completely filled, and still further increased when they are only half filled, as was not infrequently the case when a person with only one transportation ticket was permitted the exclusive occupation of a section. In view of these figures the reasonableness of the increased charge now made for the luxury of a Pullman car at once becomes apparent. It is not necessary to elaborate upon it.

3. *The rule which makes it impossible to reserve Pullman accommodations without paying for them and another rule, formerly in force, which made it necessary that Pullman tickets not used should be sent to Chicago for redemption* are the subjects of many complaining letters. These rules were deliberately adopted in an effort to prevent those who were only *thinking* about a journey that they were not certain to make from preempting the Pullman space that was urgently required by others who were compelled to travel. When it was possible to reserve a berth by telegraph or telephone or buy a Pullman ticket and get your money back at the last moment, it frequently happened that sleepers in which all the berths were reserved in the morning would go out half filled in the evening because the reserved space had not been taken up or had been released so late that it could not be resold. Now that it is necessary that both the railway ticket and the Pullman space must be paid for before a berth can be reserved, only those who are reasonably certain of traveling make reservations, and the Pullman cars are better filled, to the advantage of both the public and the railways. The rule which made it necessary to send Pullman tickets to Chicago for redemption has recently been rescinded and they will now be redeemed at the office of sale, provided they are presented long enough before the departur of the trains to permit of their resale. Thus tickets on trains leaving during the forenoon of any day must be presented at the office of sale by 5:30 o'clock p. m. on the previous day, and tickets on trains leaving after 12 o'clock noon must be presented at least three hours before the departure of the trains for which they are sold. Pullman space released later will, if possible, be resold for account of the buyer, and when so resold the tickets will be redeemed if sent by mail to the Pullman Company in Chicago. The necessity of providing Pullman cars for the transportation of our troops on night journeys has made it necessary to adopt these rules, all of which are designed to secure a full loading of the sleepers which are used by the public and thereby release those which are necessary for the transportation of soldiers.

4. *The sale of surcharge tickets for transportation in Pullman cars when no berths or seats are to be had* is one of the things properly complained of that has been remedied. Formerly the Pullman Company, being a separate and independent organization, objected to collecting revenue due the railroad companies. Now that both are under the control of the United States Railroad Administration this difficulty has disappeared, and arrangements are being made in pursuance of which the Pullman Company will hereafter sell tickets for the transportation surcharge to those, and only to those, who are able to secure accommodations in parlor cars or sleepers. Much of the unnecessary confusion hitherto arising will thus be avoided.

5. *The limit of from 24 to 48 hours now placed upon the use of tickets issued by a few roads that formerly sold unlimited or 30-day tickets for short journeys* has also provoked many complaints. It is natural that those who do not understand why this limitation has been imposed should resent it, but there is a good reason for the new rule. It is to be found in the crowded condition of the trains, which makes it exceedingly difficult for the conductor to be sure

of collecting the tickets from everyone in the car, especially when some of those who have no scruples about "beating the railroad" are skillful in evading him. If these dishonest persons could buy unlimited tickets and succeed, as many of them do, in riding without surrendering them, they would be able to resell the unused ticket or get a second or third ride free, thus giving them an advantage over their more conscientious fellow travelers. A limited ticket good only on the day of issue makes such practices more difficult, and the rule prohibiting the sale of unlimited tickets has been framed in the interest of the honest as against the dishonest person and is to be commended rather than condemned.

6. *Ill-kept stations, cars, and lavatories* compose another group of the grievances complained of in many letters that reach the Bureau for Suggestions and Complaints. The investigations which have followed the receipt of these letters reveal not a few cases of genuine neglect and carelessness. Efforts are being made to prevent their recurrence and enforce high standards of cleanliness and sanitation everywhere. It is to be admitted, however, that the shortage of labor makes this difficult, and that while the war lasts, immaculate housekeeping is hardly to be expected. One of the letters received upon this subject is worthy of special notice. It came from a woman in a Pennsylvania town where the station was unkempt. The writer said that she knew that the station agent was doing all that he could, but that she realized that it was impossible for him with the help at his disposal to keep things in a presentable condition, and she offered to organize a committee of women who would undertake to sweep out and clean the station daily as a part of their war work. It has not yet been decided whether it would be expedient to accept this offer, but the admirable public spirit that it expresses is entitled to appreciative recognition.

7. *The departure and arrival of trains at inconvenient hours and schedules which are arranged to prevent rather than facilitate close connections between trains on roads that were formerly in competition* are matters that are complained of in still another group of letters, many of which have been helpful to the officials who ever since the United States Railroad Administration was organized have been trying to co-ordinate the time tables of the various roads.

Now that competition is eliminated, there is every reason why the national time tables should be synchronized as far as possible. Efforts are being made toward this end, but the arrangement of a railroad schedule is a matter of infinite complexity and its rearrangement is even more difficult. There are many communities in the United States where the whole scheme of living has become adjusted to the arrival and departure of certain trains. To change their time would involve almost a social revolution. Then again a single change in a schedule may compel hundreds of other changes at other points or on other roads, and each innovation must be carefully studied. Some improvements have already been made, and ultimately, no doubt, a large portion of the time now wasted in waiting for connections can be saved; but in the effort to attain the ideal in this as in other respects great care must be used to avoid dropping a monkey wrench into the machinery that is already working fairly well.

Miscellaneous Complaints

This about completes the list of what have come to be called "conventional grievances" in the Bureau for Suggestions and Complaints. Of course, it does not include many other things that are complained of, nor does it take account of the innumerable suggestions that are made for the improvement of the service. Some of these suggestions are practicable and have been thankfully adopted. Others, as for instance, a bachelor's advice that a nursery car reserved for mothers and children should be run upon every train, are impracticable.

Complaints of discourtesy on the part of employees are less frequent than might have been expected and are about equal in number to the letters of commendation received.

The consolidation of ticket offices, which was at first criticized, is now generally approved as the new offices are getting into working order and their convenience is appreciated.

The delays in settling claims for lost or damaged freight and baggage are the subjects of many letters which will, no doubt, lead to a reform in the traditional policy of many claim agents who had been in the habit of trying to save money for their roads by a procrastination which often wore the claimants out. Mr. McAdoo has ordered that just claims shall be promptly paid, and that unjust or dishonest demands shall be resisted and the claimants prosecuted where there is any evidence of criminality.

Concurrently with the increase in passenger travel there has naturally been an increased amount of baggage to handle, but the comparatively small number of letters reporting "lost trunks" encourages the belief that the baggage men have succeeded in meeting the strain to which they have been subjected. It may not be amiss, however, to express the hope that the American public will soon realize that it is a war duty to travel with as little baggage as possible when travel is necessary. Handling heavy baggage is a duty that can only be performed by strong and vigorous men, and delay in the transportation and delivery of heavy trunks is almost inevitable when the number of such men available is constantly being decreased by the draft.

Generally, and with few exceptions, the communications reveal a widespread desire to co-operate with Mr. McAdoo and the United States Railroad Administration in the effort that is being made to improve railroad efficiency for the winning of the war. To this everything else must be subordinated, and in comparison with this everything else is trivial. Our soldiers must be carried in comfort on what, for some of them, will be their last journey in their own country. While they are risking their lives for our protection on the battle fields and in the trenches of Europe, they must be kept liberally supplied with everything that they may require. Our allies must be fed. Our wounded must be brought back and tenderly carried to the homes and hospitals that are ready to receive them. The Bureau for Suggestions and Complaints was primarily organized to promote the efficiency with which the railroads may serve the Nation in the doing of these things.

If it shall have exalted the convenience or comfort of the individual to the disservice of the country or a civilization that has become militant in the assertion of right and the protection of humanity, then it had better be discontinued. Comfort and convenience must give way before the supreme needs of war and be surrendered until victory is ours.

Call for Cranes by Director General Military Railways

S. M. Felton, director of military railways, needs a quantity of second-hand 8-wheel locomotive-type cranes of 15-ton capacity and up, to fill the needs of the rapidly growing army and its attendant railway problems. Crane manufacturers have been unable to keep pace in any degree with new crane orders given them, their mills and shops being blocked with orders that will keep them working at their full capacity.

In view of this extraordinary and extreme condition, the need of cranes of this kind being very great, Mr. Felton, has sent a letter appealing to owners of second-hand cranes of above general specification, to sell the cranes to Uncle Sam and help to win the war. It is not required of anyone that they donate their crane, nor that they sell at a loss, because full value will be paid in all cases to acquire such machinery, which will be turned over to essential war industries and help war workers get war munitions Over There.

General News Department

On suburban passenger trains running to and from Chicago, smoking is now prohibited, on account of the epidemic of influenza. This order was put into effect on October 22.

The appropriation bill reported to the House of Representatives on October 16 by the appropriations committee includes an item of $441,946,317 for the transportation of the army.

Charges of evasion of Director General McAdoo's orders that women railroad employees shall receive the same wages as are paid to men for similar service have been laid before the Labor Division of the Railroad Administration by the Brotherhood of Railway Clerks, according to a statement circulated by the National Women's Trade Union League. This brotherhood is pushing its organization campaign among women employees and at present 40 per cent of the members are women.

Ambrose Swasey, of Cleveland, Ohio, has given Engineering Foundation $100,000 for the endowment of engineering research. This is in addition to a similar gift of $200,000 which Mr. Swasey made in 1915. His original gift made possible the establishment of Engineering Foundation by the United Engineering Society, representing the American Society of Civil Engineers, the American Institute of Mining Engineers, the American Society of Mechanical Engineers and the American Institute of Electrical Engineers. Mr. Swasey is a past president of the American Society of Mechanical Engineers and his latest gift is an expression of his appreciation of the war service which the United Engineering Society and the Engineering Foundation have rendered to the country.

An Acknowledgment

The article entitled "The Work of the Fuel Supervisor," by F. P. Roesch, which was published in the issue of October 18, page 713, should have been credited to the Missabe Railway Club, as it was written particularly for that organization.

Economical Loading in Northwest

Statistics covering the loading of l. c. l. freight in the Northwestern region for the month of August show an increase of 5,023 tons of freight handled and a decrease of 15,917 cars used, as compared with the same month a year ago. This represents an increase in the average loading per car of approximately 20 per cent.

An Organization of Tie Producers

The Tie and Timber Division of the St. Louis Chamber of Commerce held a meeting on October 4, at which preliminary steps were taken in the organization of a national association of firms engaged in the manufacture of railroad cross ties, to provide a channel for communication and co-operation with the United States Railroad Administration and other branches of the Government in matters relating to the manufacture and sale of ties. At this meeting it was decided to call a convention of the men in this industry which will be held at St. Louis, Mo., on November 19 and 20.

Railroad Builders in France Keeping Up with Armies

The demands from Gen. Pershing for iron and steel are constantly on the increase. Every time an advance is made by the American Expeditionary Forces, there comes an order for more steel rails. The railroad builders are keeping right up with the fighting forces. B. M. Baruch, chairman of the War Industries Board says that Mr. McAdoo has taken the position: "Pershing comes first." A program has been made for rails and other needs of the American railroad system based on a clear conception that it is absolutely necessary that the railroad system must be kept up; but he has shown consistently a willingness to forego that program in the interest of the American Expeditionary Forces.

Kansas City Southern Valuation Hearings

Final arguments on the protest of the Kansas City Southern against the tentative valuation of its property certified by the Bureau of Valuation of the Interstate Commerce Commission, nearly two years ago, were held at Washington before the commission on October 17, 18 and 19. Samuel Untermyer, counsel for the company, at first filed a motion for a continuance on the ground that certain testimony regarding land values was made necessary by the commission's decision in the Texas Midland case which the road had not presented because of the understanding that it would not be required. The commission denied the motion "without prejudice." Mr. Untermyer also filed a motion that the proceeding be dismissed on the ground that the valuation act is unconstitutional. Arguments on behalf of the road were presented by Mr. Untermyer and Samuel W. Moore, general solicitor for the Kansas City Southern, and also by the representatives of the Bureau of Valuation, the state railroad commissions, and the Western Union Telegraph Company, which objected to a part of its property being scheduled as a part of the property of the railroad.

Development Committee of A. S. C. E.

The American Society of Civil Engineers has appointed a committee on development to make a survey of the activities of that organization and to suggest any changes which may be advisable from the standpoint of the welfare of the organization. This committee consists of seven members appointed by the president and one appointed by each of twenty-one local associations. It includes Onward Bates, consulting engineer, Chicago, chairman; W. L. Darling, consulting engineer, St. Paul, and formerly chief engineer Northern Pacific; Frank T. Darrow, assistant chief engineer, Chicago, Burlington & Quincy, Lincoln, Neb.; H. R. Safford, engineering assistant to regional director, Central Western region, Chicago; E. S. Nethercut, secretary, Western Society of Engineers, Chicago; Charles Hansel, consulting valuation engineer, Pennsylvania and Philadelphia & Reading railroads, New York, and W. H. Hoyt assistant chief engineer, Duluth, Missabe & Northern, Duluth, Minn.

Make Every B. O. Locomotive a Live One

We cannot assume that there will be an early cessation of fighting. We are not going to stop fighting until we get this thing finished. Pershing needs locomotives—why? Because we have the Germans on the move to Berlin and they are moving so fast that it takes American locomotives to keep up with them. Pershing wants locomotives that we need for the railroads of the United States, and he wants steel rails over there to put those locomotives on so he can keep up with the Germans. I have said that General Pershing can have those locomotives, as we railroad men will see that he gets anything he needs from the railroads of the United States. We can give him those locomotives only if you make every bad order locomotive a live one as quickly as you possibly can do it. I want you to work all the harder on these dead locomotives. A bad order locomotive is a Prussian soldier, and I want you to jump on every Prussian soldier that gets into the shops, mark "Prussian" on him in chalk and then hammer hell out of him until you convert him into a

live American soldier. That is the way you can help Pershing and the boys in France. (From an address by Director General W. G. McAdoo at Connellsville (Pa.) shops on October 13.)

Well-Organized Thieves

Merchandise valued at more than $25,000 which had been stolen from New York Central freight cars in Bay View, West Seneca and Gardenville yards, has been recovered by Capt. Seth Conover of the Pennsylvania railroad police force and allied city and special forces; and 13 railroad employees have been placed under arrest. Four of the men arrested are special officers entrusted with the protection of property, seven are switchmen in the yards, and two men had stations in the signal towers, where it was possible to manipulate the signals so as to stop heavily laden trains where thieves might climb aboard and carry on their looting before the trains came into the city. Silverware, overcoats, Victrolas, furniture, food, sweaters, suitcases, cameras, hats and shoes were some of the stolen property recovered.—*Buffalo Courier.*

Canadian Pacific Freight Handlers' Strike

A strike which was started by the freight handlers on the Canadian Pacific at Calgary, Alta., on September 21, has not yet been settled, notwithstanding the company's strenuous efforts to reach an amicable agreement with its employees.

The freight handlers notified the company on the day mentioned that they would strike within four hours unless the company would restore to his position a foreman who had been reduced because of incapacity; or would agree to fill the position according to seniority. The company would not consider such a proposal, and the men accordingly struck, being joined by some of the clerks in the freight office, all the employees in the baggage room and a number of yard clerks. The canadian Department of Labor at once attempted to mediate. The men who belonged to the Brotherhood of Railway Clerks, Freight Handlers and Station Employees then said that, in addition to the matter about which the specific dispute arose, there were other grievances which must be adjusted before they would return to work; the failure of the company to recognize their union, and to make the effective date of certain increases of pay May 1, instead of August 1.

The men had not submitted either of these grievances to the company before stopping work. The road immediately made an offer that if the men would return to work at once and would abandon their contention in connection with the foreman it would receive a committee with regard to the other matters, and if no settlement could be reached it would allow the questions to go to the Board of Adjustment formed by the Canadian Railway War Board. The employees failed to keep their promise to the government's representative that they would return to work on this understanding, and having been given several opportunities to do so, the company filled their places, employing among others a number of soldiers who had seen active service and had been discharged from military service; and also a number of dependents of soldiers still serving at the front. As there was apparently no prospect of the strikers returning to work these new employees were promised permanent positions.

In the meantime, the freight handlers at Winnipeg, Man., who belonged to the same union, had been negotiating in regard to wages. They finally appealed to Grant Hall, then vice-president and general manager of the western lines, but no agreement was reached and it was decided to refer the matter to the Board of Adjustment. At the last minute the men at Winnipeg said they would not allow the matter to go to this board unless all the strikers at Calgary were allowed to return to work. The company refused this request and the freight handlers were then called out at Fort William, Ont.; Winnipeg, Man.; Regina, and Moose Jaw, Sask.; Lethbridge, Medicine Hat and Edmonton, Alberta; and Vancouver, B. C. After they had been out for some time they were joined by the mechanics employed in the Ogden repair shops near Calgary and the mechanics at one or two outside roundhouses. At present a member of the Canadian government is endeavoring to effect a settlement.

End of the Daylight Saving Season

The hands of the clocks throughout the United States will be turned back one hour on the morning of October 27, at 2 o'clock, in accordance with the law. The bill which was introduced in Congress by Senator Calder to amend the law and to continue keeping all clocks and watches an hour ahead of time, was passed by the Senate; but in consequence of the numerous objections presented before the House Committee, no action was taken in that body, and the law remains in force. Three different methods will be employed by the railroads to rearrange their trains when the clocks are changed. The plan of the New York Central to start its principal through trains on the evening of the 26th one hour behind time, was noted in our last issue. The Erie and the Lehigh Valley will pursue a similar course. The Pennsylvania will make no changes in trains until 2 o'clock. All regular trains on the road at that hour must be stopped at the first open telegraph or telephone office and there compare time with the train despatcher; and they will then continue their journey as extras, arriving at subsequent stations one hour ahead of time. Train 37, for example, leaving New York at 11:30 p. m., and due in Pittsburgh at 9:55 a. m. will, if it suffers no unforeseen delays, reach Pittsburgh, according to the new reading of the clocks, at 8:55. On single track lines of the Pennsylvania, all trains must be brought to a standstill at 2 o'clock and the men must change their watches; and they can then proceed only on a regular order from the train despatcher. The New York, New Haven & Hartford, like the Pennsylvania, will run its through night trains, after 2 o'clock, as extras.

The Delaware, Lackawanna & Western proposes to start its trains on time and to hold them one hour at some convenient station about 2 o'clock. For example, train No. 9, leaving New York at 8:30 p. m., will be held at Binghamton, and train No. 10 leaving Buffalo at 5:50 p. m., will be held at Scranton.

Bridge and Building Supply Men's Association

The Bridge & Building Supply Men's Association, which presented an exhibit in connection with the convention of the American Railway Bridge & Building Association at Chicago, on October 15, 16 and 17, elected the following officers at its concluding session on Thursday morning of last week: President, P. C. Jacobs, H. W. Johns-Manville Company, Chicago; vice-president, Tom Lehon, the Lehon Company, Chicago; treasurer, C. E. Ward, U. S. Wind Engine & Pump Co., Batavia, Ill.; secretary, M. J. Trees, Chicago Bridge & Iron Works, Chicago. Members of Executive Committee: G. R. McVay, the Barrett Company, Chicago, to succeed E. J. Caldwell, resigned; W. O. Washburn, American Hoist & Derrick Company, St. Paul, and A. J. Filkins, Paul Dickinson Company, Chicago.

Railway Surgeons

The American Association of Railway Surgeons held its fifteenth annual meeting at the Hotel Sherman, Chicago, on October 16, 17 and 18. There was an attendance of only about 55 on account of the influenza epidemic. The following officers were elected for the coming year: President, J. P. Kaster, chief surgeon, Atchison, Topeka & Santa Fe, Topeka, Kan.; first vice-president, J. M. Miller, Villa Grove, Ill.; second vice-president, Charles P. Frantz, Burlington, Iowa; third vice-president, J. P. Lord, Omaha, Neb.; treasurer, H. B. Jennings, Council Bluffs, Iowa; secretary, Louis J. Mitchell, Chicago.

Manufacturers of Chilled Car Wheels

The Association of Manufacturers of Chilled Car Wheels held its annual meeting October 15 at the Waldorf-Astoria, New York. The following officers were elected for coming year:

President and treasurer, George W. Lyndon; vice-presidents, E. F. Carry, president, Haskell & Barker Car Company, and J. A. Kilpatrick, president, Albany Car Wheel Company; secretary, George F. Griffin, president, Griffin Wheel Company; consulting engineer, F. K. Vial, chief engineer, Griffin Wheel Company.

Railway Earnings in August

Net operating income of the railways for the month of August as reported by the Interstate Commerce Commission was $127,549,531, or $26,000,000 greater than in August, 1917. Operating revenues, $502,759,622, were over $136,000,000, or 37 per cent greater, reflecting the increases in freight and passenger rates, while the operating expenses, $358,987,665, showed an increase of $112,000,000, or over 45 per cent, a large part of which is attributable to the increased wages. For the eight months of the calendar year the net operating income was $417,654,223, as compared with $633,752,969 in 1917. This is approximately $200,000,000 short of the estimated amount of the government's guarantee to the railway companies. For the eight months' period operating revenues showed an increase of $440,000,000 while the operating expenses increased $652,000,000. The mail traffic is the only item of revenues that shows a decrease, while traffic expenses and transportation for investment are the only items of expenses to show a decrease. The detail figures follow:

RAILWAY EARNINGS AND EXPENSES

FOR THE MONTH OF AUGUST

Item	United States Amount 1918	United States Amount 1917	United States Per mile of road operated 1918	United States Per mile of road operated 1917	Eastern District Amount 1918	Eastern District Amount 1917	Eastern District Per mile of road operated 1918	Eastern District Per mile of road operated 1917
1. Average number miles operated	232,866.10	232,202.31	.....	.....	59,703.42	59,336.78	.....	.....
REVENUES:								
2. Freight	$349,816,570	$250,281,115	$1,502	$1,078	$162,059,307	$113,154,339	$2,714	$1,907
3. Passenger	113,651,976	81,923,003	488	353	52,100,614	37,539,969	873	633
4. Mail	4,474,822	4,830,148	19	21	1,750,651	1,905,731	29	32
5. Express	10,650,916	9,107,049	46	39	5,002,457	4,244,913	84	71
6. All other transportation	11,992,973	10,050,982	52	43	6,962,538	5,724,385	117	96
7. Incidental	11,794 533	9,769,008	51	42	6,951,910	5,438,484	116	92
8. Joint facility—Cr	527,496	402,401	2	2	265,323	200,528	4	3
9. Joint facility—Dr	149,664	140,105	1	1	75,321	86,572	1	1
10. Railway operating revenues	502,759,622	366,223,601	2,159	1,577	235,017,479	168,121,777	3,936	2,833
EXPENSES:								
11. Maintenance of way and structures	56.585,861	42,393,551	243	182	24,652,300	18,113,493	413	305
12. Maintenance of equipment	115,747,516	59,912,634	497	258	57,956,197	28,199,537	971	475
13. Traffic	3.517,908	5,609,413	15	24	1,568,114	2,362,132	26	40
14. Transportation	171.597,296	128,893,684	737	555	83,531,375	64,215,636	1,399	1,082
15. Miscellaneous operations	3,376,553	2,968,545	15	13	1,637.385	1,377,702	27	23
16. General	8 590.329	7,928,576	37	34	3,792,699	3,469,467	64	58
17. Transportation for investment—Cr	427,798	787,662	2	3	44,525	96,184	1	1
18. Railway operating expenses	358.987.665	246,918,741	1,542	1,063	173,093,545	117,641,783	2,899	1,982
19. Net revenue from railway operations	143.771,957	119,304,860	617	514	61,923.934	50,479,994	1,037	851
20. Railway tax accruals (excluding "War Taxes")	15.596.969	14,774,952	67	64	6,098.494	5,838,464	102	99
21. Uncollectible railway revenues	51,907	57,017	.....	.....	21,515	27,068	.....	.....
22. Railway operating income	128,123,081	104,472,891	550	450	55,803,925	44,614,462	935	752
23. Equipment rents	1,013,144	†1,617,885	4	†7	645,574	†3,009,070	11	†51
24. Joint facility rent (Dr. Bal.)	1.586.694	1,468,951	7	6	863,579	744,788	15	12
25. Net of items 22, 23 and 24	127,549.531	101,386,055	547	437	55,585,920	40,860.604	931	689
26. Ratio of operating expenses to operating revs..%	71.40	67.42	.....	.....	73.65	69.97	.....	.....

Item	Southern District Amount 1918	Southern District Amount 1917	Southern District Per mile of road operated 1918	Southern District Per mile of road operated 1917	Western District Amount 1918	Western District Amount 1917	Western District Per mile of road operated 1918	Western District Per mile of road operated 1917
1. Average number miles operated	42,854.34	42,762.32	.....	.....	130,308.34	130.103.21	.....	.....
REVENUES:								
2. Freight	$54,088.225	$37,104,308	$1,262	$868	$133,669.038	$100,022,468	$1,026	$769
3. Passenger	19,936,449	11,405,914	465	267	41,614,913	32,977,120	319	253
4. Mail	724,363	733,747	17	17	1,999,808	2,190,670	15	16
5. Express	1,711,856	1,235,631	40	29	3,936,603	3,626,505	30	28
6. All other transportation	815,174	707,396	19	17	4,215.261	3,619,201	32	28
7. Incidental	1,380,639	955,937	32	22	3,461,984	3,374,587	27	26
8. Joint facility—Cr	145,320	95,118	3	2	116.853	106,755	1	1
9. Joint facility—Dr	26.036	23,896	.....	1	48,307	29,637	.....	.....
10. Railway operating revenues	78,775,990	52,214,155	1,838	1,221	188,966,153	145,887,669	1,450	1,121
EXPENSES:								
11. Maintenance of way and structures	9,342,230	6,614,733	218	155	22,591,331	17,665,325	173	136
12. Maintenance of equipment	18,053,700	9.803,126	421	229	39,737,619	21,909,971	305	168
13. Traffic	646,548	979,321	15	23	1,303,246	2,267,960	10	18
14. Transportation	25,338,742	17,303,806	591	405	62,727,179	47,374,242	481	364
15. Miscellaneous operations	326,518	254,379	8	6	1,412,650	1,336,464	11	10
16. General	1,311.701	1,166,021	30	27	3,485,929	3,293,088	27	25
17. Transportation for investment—Cr	66,413	132,438	1	3	316.860	559,040	2	4
18. Railway operating expenses	54,953,026	35.988,948	1,282	842	130,941.094	93,288,010	1,005	717
19. Net revenue from railway operations	23,822.964	16,225,207	556	379	58,025,059	52,599,659	445	404
20. Railway tax accruals (excluding "War Taxes")	2.318,525	2,235,331	54	52	7,179,950	6,701,157	55	51
21. Uncollectible railway revenues	9,790	6,668	.....	.....	20,602	23,281	.....	.....
22. Railway operating income	21,494.649	13,983,208	502	327	50,824,507	45,875,221	390	353
23. Equipment rents	314,964	1,337.563	7	31	52,606	53,622	.....	.....
24. Joint facility rent (Dr. Bal.)	162,473	134,993	4	3	560,642	589.170	4	5
25. Net of items 22, 23 and 24	21,647,140	15,185,778	505	355	50,316,471	45,339,673	386	348
26. Ratio of operating expenses to operating revs..%	69.76	68.93	.....	.....	69.29	63.95	.....	.....

†Debit item.

Note—The average railway operating income corresponding to item No. 22 above for the month of August in the three years 1914, 1915, 1916, included in the "test" period of three years ended June 30, 1917, was $396 per mile of line for the United States.

October 18, 1918.

America's Only Terms—"Unconditional Surrender"

Traffic News

The annual meeting of the National Industrial Traffic League will be held at the Hotel Sinton, Cincinnati, O., on November 21 and 22. The docket for the meeting will be distributed about November 10, giving in detail the subjects to be considered.

Grain for Newport News has been temporarily embargoed on account of the inability of the Chesapeake & Ohio to take any more cars for that point. This failure on the part of the C. & O. is due to the influenza epidemic which has incapacitated a large number of train service employees. As a result of the embargo about 250,000 bushels of oats is now being held in Minneapolis and St. Paul waiting for other disposition.

Reduced passenger fares for soldiers and sailors are not desired by the War Department, which does not approve the Calder bill, proposing a cent a mile rate. While it is recognized that such legislation would be very acceptable to the officers and enlisted men of the army, the department feels that it would result in an increase of travel over the already much congested railroads incommensurate with any advantage gained.

The Indiana State Chamber of Commerce is to establish at Indianapolis a freight bureau, with a view to exercising the highest intelligence in securing for Indiana, from the railroads, every traffic advantage that belongs to that state. The members of the Chamber are said to have resolved to "wage a fight" against alleged discrimination in freight rates in favor of Illinois as against Indiana. The new bureau will be in charge of a committee of 15, who will represent all parts of the state; and an appropriation of $12,000 a year has been made to maintain the bureau.

The Shreveport (La.) Chamber of Commerce has adopted resolutions calling the attention of the director general of railroads to the intimate connection between rate adjustments and the success of Liberty Loan campaigns. The Shreveport merchants feel a growing uneasiness over the probable effect of proposed rate revisions, such as the proposed readjustment of lumber rates between points in Texas, contemplated increases in commodity rates from St. Louis, and the proposed new mileage scales for southern and western territories. While the Chamber of Commerce does not question the justification for further necessary blanket increases nor object to the correction of specific maladjustments that may have been caused by General Order No. 28, it does believe wholesale changes in rate relationships will tend to unsettle business conditions and endanger the success of future bond sales.

Transit Privileges Extended

The Railroad Administration has arranged a plan by which milling-in-transit and transit privileges generally at the various transit points will be available via all lines, so that commodities shipped into a transit point may, on surrender of the bill of lading, be shipped out at the balance of the through rate, over any line.

Precautions Against Freezing

Director General McAdoo has issued a statement asking the co-operation of shippers in the conservation of perishable food products. He says:

"The loss of fruit and vegetables on account of freezing during the course of transportation in winters past has been enormous. The conservation of food, as urged by the Food Administration, makes it particularly necessary to give serious consideration to the protection of fruits and vegetables with the approach of winter. Extra precaution in the packing, as well as protection against exposure at the point of origin and destination is very essential. The Weather Bureau advance notices of temperatures should be closely observed by shippers and shipments withheld when very low temperatures prevail and when forecasted. A delay to conserve the property is to the advantage of both shipper and consignee. The best protection available will not always protect perishable freight in extremely cold weather."

Coal Production

Production of bituminous coal during the week ended October 12 is estimated at 12,321,000 net tons, an increase over the corresponding week of last year of 12 per cent. For the first six months of the coal year of 1918 production of bituminous coal is estimated at 312,282,414 net tons, an increase of 37,745,242 net tons, or 13.7 per cent, as compared with the corresponding period of 1917. This, however, was 3.7 per cent behind the estimated requirements. During the week ending October 5, the percentage of full time output lost on account of car shortage is reported at 5½ per cent.

For the week ending October 12 production of anthracite is estimated at 1,955,000 net tons, a decrease of 4.7 per cent compared with the preceding week.

The Car Service Section of the Railroad Administration reports the total loading of coal for the week ending October 5 as 270,909 cars, as compared with 236,154 in the corresponding week of 1917. For the week ended October 12, with the figures for some roads estimated, the increase in coal loading in 1918 up to October 12 over the same period of 1917 was 713,076 cars.

Reductions on Sheep and Apples

The traffic department of the Railroad Administration has authorized the establishment on one day's notice of a rule to provide that: Sheep in carloads, originating in Arizona, California, Colorado, Idaho, Kansas, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington or Wyoming, may be stopped at West Chicago, Illinois, to be rested, fed and watered at public feed yards for a period not exceeding six months, on a basis of the lawful tariff rate from point of origin to final destination in effect on date of shipment from point of origin, provided sheep remain in possession of and under control of carrier. Sheep handled through public feed yards, served by carrier's rails to be considered as being in possession of carrier. All excess weight from stopping point to be charged for at local rate from stopping point. Where carrier furnishes food, the charge therefor will be current market price plus 10 per cent in addition to charge for labor incident to the feeding of the stock.

Tariff authority has also been issued for the publication on one day's notice of a minimum rate of $1.10 per hundred pounds on apples, in carloads, from Pacific coast states to eastern territory where the rate in effect prior to May 25, 1918, was $1.00 or less; and where the rate in effect on May 25, 1918, was higher than $1.00, then the new rate will be 10 cents higher per hundred pounds above the old rate. These are reductions from the rates established by General Order 28 and will be published as emergency rates to expire May 31, 1919. The old rate on apples from Pacific Coast states to eastern territory was generally $1.00 per hundred pounds, and was advanced by General Order 28 to $1.35.

Pooling of Stock Trains Out of South St. Paul

In August the Northwestern regional director initiated a plan under which train-lot movements of live stock between South St. Paul, Minn., and Chicago are confined to four roads, alternating by trains. During the month of September an aggregate of 2,990 cars was moved in this manner by the Chicago, Burlington & Quincy, the Chicago, Milwaukee & St. Paul, the Chicago Great Western and the Chicago, St. Paul, Minneapolis & Omaha (Chicago & North Western). A total of 53 trains were run with an average of 56 cars per train. Allowing one hour for weighing the stock and making deliveries of cars to the carrying line, no train was delayed to exceed 20 minutes; and all but three trains out of the 53 started on time. All of the trains made the trip to Chicago within the 36-hr. limit set for the run.

Equipment and Supplies

The War Department's inquiries for freight cars for service on the military lines in France are classified as follows: 4,060 flat cars, 9,670 low-side gondolas, 7,135 high-side gondolas, 7,840 gondolas with cabs, 10,010 box cars, 550 refrigerator cars and 1,050 tank cars, making a total of 40,315. Bids are being received this week.

600 More Standard Locomotives Ordered

The United States Railroad Administration has ordered for 1919 delivery 600 locomotives in addition to the 1,415 which it has already ordered. Of these, 500 will be built by the American Locomotive Company and 100 by the Lima Locomotive Corporation. The orders are distributed as follows: American Locomotive Company, 150 eight-wheel switchers, 200 light Mikados, 50 heavy Mikados, 25 light Santa Fe and 75 2-8-8-2 type Mallet; Lima Locomotive Corporation, 50 six-wheel switchers and 50 light Mikados. Bids have been asked for the specialties, which will be in accordance with the standard specifications used for the previous orders.

The United States Railroad Administration has authorized the building of 2,000 100-ton coal cars for the Virginian, to be equipped with six-wheel trucks and to conform generally to the standard specifications. This departure from the standards is authorized to enable the Virginian to use larger cars, which its grades make desirable, than the standard cars already ordered.

Cars Built in Railroad Shops

A total of 5,701 freight cars and 85 passenger cars have been constructed in railroad shops from January 1 to August 31 this year, according to reports to the Mechanical Department of the Railroad Administration. For the first six months of the year 4,414 freight cars were built and 66 passenger cars. In July 518 freight cars and 9 passenger cars were built and in August 769 freight cars and 10 passenger cars. The total by classes for the eight months period is as follows:

NEW CARS CONSTRUCTED IN RAILROAD SHOPS

Class of Cars	Steel	Steel under-frame	Steel center sills	Wood	Total
PASSENGER					
Sleeping	..	....	.	....	....
Parlor	..	....	.	....	....
Dining	..	....	.	3	3
Parlor observation	..	....	.	....	....
Passenger coach	..	....	.	....	....
Passenger baggage	1	....	.	1	2
Passenger and mail	..	....	.	4	4
Mail	..	....	.	....	....
Baggage and mail	..	....	.	....	....
Baggage	21	3	.	25	49
Express	4	1	.	19	24
Express and refrigerator	..	....	.	....	....
Horse express	..	....	.	....	....
Milk	..	....	.	3	3
TOTAL PASSENGER EQUIPMENT	26	4	0	55	85
FREIGHT					
Stock	..	200	.	699	899
Hopper	..	....	.	293	293
Gondola	..	486	.	1,083	1,569
Flat	..	118	.	135	253
Coke rack	..	....	.	....	....
Work cars	..	....	.	57	57
Miscellaneous freight cars	..	....	.	....	....
Caboose	..	42	.	280	322
Box	..	501	.	1,785	2,286
Refrigerator	..	18	.	4	22
TOTAL FREIGHT EQUIPMENT	0	1,365	.	4,336	5,701
TOTAL FREIGHT AND PASSENGER	26	1,369	0	4,391	5,786

Locomotives

THE PENNSYLVANIA EQUIPMENT COMPANY, Philadelphia, Pa., is in the market for one 30-in. gage locomotive weighing about 25 tons, and one standard gage locomotive, weighing about 70 to 80 tons of the Consolidated or Ten-wheel type.

Supply Trade News

Oscar F. Ostby, railway supplies, has moved his office from 2736 Grand Central Terminal, New York, to Room 1044 in the same building.

Charles V. Eads, formerly connected with the Sarco Company, at Chicago, has become associated with the Lehon Company, in charge of its waterproofing department, and will have his headquarters in Chicago.

H. D. Megary, assistant to the president of the Chicago Pneumatic Tool Company, with headquarters at Chicago, has been elected secretary, with the same headquarters, succeeding **W. B. Seelig,** resigned. Mr. Megary will continue to act as assistant to the president.

Lloyd H. Atkinson has resigned as vice-president of the Air Reduction Company, Incorporated, 120 Broadway, New York. Mr. Atkinson has been in poor health for some time, as a result of overwork, and will take an extended vacation before engaging in one of the war service activities.

Phillips Wesley has been appointed manager in charge of the oxyhydrogen plant and sales office of the International Oxygen Company at Pittsburgh, Pa. The company announces also that **Jack Heller,** long with L. Heller & Sons, has joined its New York sales force, succeeding Mr. Barnitz. **George Quelch,** one of the staff engineers of the International Oxygen Company, 115 Broadway, New York, sailed recently for England to supervise the installation of a 480-cell plant of I. O. C. unit oxyhydrogen generators for the British admiralty.

C. D. Morton has left his position as sales engineer for the Page Steel & Wire Company to become a captain in the general engineer depot, U. S. A., at Washington. **Chas E. Goodnow,** formerly assistant sales manager of the electrical and special wire department of the American Steel & Wire Company, and more recently identified with building construction work in Washington and Brooklyn for the army and navy, is now with the Page Steel & Wire Company. Mr. Goodnow's efforts will be devoted to sales and service on Armco iron welding rods and "Copperweld" electrical wire.

Lieut.-Colonel Lamont Promoted

Lieut.-Col. Robert Patterson Lamont, president of the American Steel Foundries, who has been assistant chief in the procurement division of the ordnance department of the army, has been promoted to succeed **Brig.-Gen. Samuel McRoberts** as division chief of ordnance, with headquarters at Washington, D. C. His military rank, however, continues the same. Col. Lamont was born at Detroit, Mich., on December 1, 1867, and graduated from the University of Michigan in 1891. After leaving college he was engaged as engineer of construction at the World's Columbian Exposition in Chicago, and from 1892 to 1897, was secretary and engineer of the contracting firm, Shailer & Schinglau. He then became connected with the Simplex Railway Appliance Company as first vice-president. In 1905, he was elected first vice-president of the American Steel Foundries, and was elected president of that company in 1911.

Lieut.-Col. R. P. Lamont

Railway Officers

Railroad Administration

Central Administration

E. J. Roth, formerly purchasing agent of the Chicago, Indianapolis & Louisville, who was appointed on October 1 general storekeeper of that road, the Cleveland, Cincinnati, Chicago & St. Louis; the Chesapeake & Ohio of Indiana, and a group of roads in that territory, has been furloughed and appointed manager of the Stores Section of the Central Advisory Purchasing Committee, with office at 601 G street, Washington. **U. K. Hall,** general storekeeper of the Union Pacific, has been appointed associate manager of the section, with office at the same address in Washington.

Regional

G. W. Jett, in addition to his duties as superintendent of telegraph of the Norfolk & Western, has been appointed supervisor of telegraph and telephone facilities for all roads in the Pocahontas Region.

Federal and General Managers

Phil Carroll, general manager of the Texas & Pacific, with office at Dallas, Texas, has had his jurisdiction extended over the Weatherford, Mineral Wells & Northwestern.

J. F. Murphy, general manager of the Missouri Pacific, the Chicago, Rock Island & Pacific line from St. Louis, Mo., to Kansas City, and the Memphis, Dallas & Gulf, with headquarters at St. Louis, Mo., has had his jurisdiction extended over the Arkansas Central, the Natchez & Southern and the Natchez & Louisiana Railroad Transfer, with the same headquarters, effective October 15.

Operating

J. A. Gillies, district engineer of the Atchison, Topeka & Santa Fe, western lines, at La Junta, Colo., has been appointed trainmaster at Dodge City, Kan.

J. W. Allen, whose promotion to superintendent of the Puget Sound division of the Northern Pacific, with headquarters at Seattle, Wash., was announced in the *Railway Age* of October 4, was born at La Porte, Ind., in June, 1861. Mr. Allen began his railway career in the freight office of the Wabash at Kansas City, Mo., in 1878. Three years later he went to the Mexican National, now a part of the Constitutionalist Railways of Mexico, in the auditor's office at Laredo, Texas. From 1884 to 1890, he was in charge of the export grain elevator of the Fitchburg Railroad, at Boston, Mass. In the latter year he entered the service of the Northern Pacific, as agent, at Seattle, Wash., and served in that capacity continuously until January, 1918, when he was appointed acting superintendent at Seattle, which position he held until his promotion to superintendent of the Puget Sound division, as mentioned above.

J. W. Allen

A. Patriarche has been appointed assistant to the federal manager of the Pere Marquette, in charge of traffic, having authority also over traffic matters of the Grand Trunk, western lines, the Detroit & Toledo Shore line, the Ann Arbor, the Detroit & Mackinac, the Detroit, Bay City & Western, and the Port Huron & Western, with office at Detroit, Mich.

J. K. Graham has been appointed manager of station operation of the Baltimore & Ohio Railroad, Eastern Lines; the Coal & Coke; the Wheeling Terminal Railroad; the Western Maryland; the Cumberland Valley, and the Cumberland & Pennsylvania, with headquarters at Baltimore, Md., in charge of station service, inspection of freight service and prevention of freight claims.

G. G. Derby, division superintendent of the Atchison, Topeka & Santa Fe at Arkansas City, Kan., has been transferred to the Southern Kansas division, with headquarters at Chanute, Kan. **J. E. McMahon,** division superintendent at Pueblo, Colo., has been transferred to the Oklahoma division, with office at Arkansas City, Kan., in place of Mr. Derby. **O. J. Ogg,** trainmaster at Raton, N. M., has been promoted to assistant superintendent of the Panhandle division at Wellington, Kan. **A. Ewng,** division superintendent at Clovis, N. M., has been transferred to Dodge City, Kan., in place of **H. A. Tice,** who has been transferred to Pueblo, Colo. **C. E. Smyer,** trainmaster at Dodge City, Kan., has been promoted to division superintendent at Clovis, N. M., to succeed **A. Ewing.**

Financial, Legal and Accounting

D. A. Barton has been appointed auditor of freight receipts of the Denver & Rio Grande, with headquarters at Denver, Colo., succeeding **F. M. Dewees,** deceased. Effective October 16.

T. O. Edwards, general auditor of the Southern Pacific (lines south of Ashland), has been appointed federal auditor, with headquarters at San Francisco, Cal. The title of general auditor is abolished.

J. F. Evans, general auditor of the Western Pacific; the Tidewater Southern, and the Deep Creek, has been appointed federal auditor, with headquarters at San Francisco, Cal. The title of general auditor is abolished.

George Thompson, general solicitor of the Texas & Pacific and other roads under the authority of **J. L. Lancaster,** federal manager, with headquarters at Dallas, Texas, has had his jurisdiction extended over the Weatherford, Mineral Wells & Northwestern.

F. M. Hickman, acting federal treasurer of the Missouri Pacific, with headquarters at St. Louis, Mo., has had his jurisdiction extended over the Arkansas Central, the Natchez & Southern and the Natchez & Louisiana Raiload Transfer, with the same headquaters, effective October 15.

W. M. Edgar, general superintendent and treasurer of the Weatherford, Mineral Wells & Northwestern, has been appointed acting federal treasurer, with office at Weatherford, Texas. **S. B. Smith,** auditor and assistant general freight and passenger agent, has been appointed auditor, with office at Weatherford.

The title of the following officers of the Southern Pacific (lines south of Ashland, Ore.), are now as follows: **Robert Adams,** assistant federal auditor; **F. L. McCaffery,** auditor of disbursements; **F. W. Pope,** auditor of freight accounts; **O. F. Giffin,** auditor of passenger accounts, and **W. H. Dewey,** auditor of equipment service accounts, all with headquarters at San Francisco, Cal.

E. J. White, general solicitor of the Missouri Pacific, the St. Louis Southwestern, the Louisiana & Arkansas and the Memphis, Dallas & Gulf, and **F. P. Johnson,** general auditor of the Missouri Pacific and the Memphis, Dallas & Gulf, with headquarters at St. Louis, Mo., have had their jurisdictions extended over the Arkansas Central, the Natchez & Southern and the Natchez & Louisiana Railroad Transfer, effective October 15.

L. J. Hensley, general auditor of the Kansas City Southern and auditor of the Texarkana & Ft. Smith, with headquarters at Kansas City, Mo., has been appointed federal auditor of these roads, the Midland Valley, the Houston East & West Texas, the Vicksburg, Shreveport & Pacific, the Kansas City,

Mexico & Orient, the Missouri & North Arkansas and the Joplin Union Depot. All auditors for the individual lines appointed heretofore will be under the jurisdiction of the federal auditor.

A. J. Biard, general auditor of the Texas & Pacific and the Trans-Mississippi Terminal, with office at Dallas, Texas, has been appointed general auditor also of the St. Louis Southwestern of Texas; the International & Great Northern (excluding line from Spring to Ft. Worth and Madisonville Branch); the Trinity Branch of Missouri, Kansas & Texas of Texas; the Beaumont & Great Northern; the Galveston, Houston & Henderson; the Houston & Brazos Valley, and the Weatherford, Mineral Wells & Northwestern, with headquarters at Dallas, Texas.

O. H. Bower, auditor of the Missouri, Kansas & Texas of Texas and the Union Terminal of Dallas, has been appointed general auditor of those lines and the Gulf, Colorado & Santa Fe; the St. Louis, San Francisco & Texas; the Ft. Worth & Rio Grande; the Brownwood, North & South; the Texas Midland; the International & Great Northern (from Spring to Ft. Worth & Madisonville branch); the Ft. Worth Belt; the Houston Belt & Terminal; the Wichita Falls & Northwestern; the Ft. Worth & Denver City; the Wichita Valley; the Houston & Texas Central; the Abilene & Southern, and the Ft. Worth union passenger station; effective October 16.

Traffic

The jurisdiction of **W. L. Martin,** traffic manager of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., has been extended over the Duluth, South Shore & Atlantic and the Mineral Range.

H. S. Smith has been appointed chief of tariff bureau of the Chesapeake & Ohio; the Ashland Coal & Iron Railroad; the Sandy Valley & Elkhorn, and the Long Fork Railroad, vice **R. A. Knightly,** deceased.

J. B. Payne, traffic manager of the Texas & Pacific and other roads under the authority of **J. L. Lancaster,** federal manager, with headquarters at Dallas, Texas, has had his authority extended over the Weatherford, Mineral Wells & Northwestern.

C. E. Perkins, freight traffic manager, and **C. L. Stone,** passenger traffic manager of the Missouri Pacific, the St. Louis Southwestern, the Louisiana & Arkansas and the Memphis, Dallas & Gulf, with headquarters at St. Louis, Mo., have had their jurisdictions extended over the Arkansas Central, Natchez & Southern and the Natchez & Louisiana Railroad Transfer, with the same headquarters, effective October 15.

The jurisdiction of the following officers of the Kansas City Southern has been extended over the Missouri & North Arkansas: **R. R. Mitchell,** general freight agent; **J. R. Mills,** assistant general freight agent; **S. G. Warner,** general passenger agent; **F. D. Downie,** general baggage agent, and **J. W. Spoor,** live stock agent, all with headquarters at Kansas City, Mo. **C. E. Veach,** general freight and passenger agent, has been appointed division freight and passenger agent, with headquarters at Harrison, Ark.

Engineering and Rolling Stock

J. L. Kirby, division engineer of the Seaboard Air Line, with office at Atlanta, Ga., has been appointed engineer maintenance of way, with office at Norfolk, Va., vice **J. C. Nelson,** deceased.

Silas Zwight, general master mechanic, and **W. J. Bohan,** mechanical engineer of the Northern Pacific, have been appointed assistant mechanical superintendents, both with headquarters at St. Paul, Minn.

E. F. Mitchell chief engineer of the Texas & Pacific and other lines under the authority of **J. L. Lancaster,** federal manager, with headquarters at Dallas, Texas, has had his authority extended over the Weatherford, Mineral Wells & Northwestern.

D. E. Helvern, division engineer on the Atchison, Topeka & Santa Fe, at Pueblo, Colo., has been promoted to engineer of the northern district, western lines, with headquarters at La Junta, Colo., succeeding **J. A. Gillies,** appointed trainmaster at Dodge City, Kan.

S. A. Jordan, assistant division superintendent of the Baltimore & Ohio, with office at Brunswick, Md., has been appointed engineer maintenance of way of the Baltimore & Ohio Railroad, Eastern Lines, and the Coal & Coke Railroad, with headquarters at Baltimore, Md., vice **J. B. Myers,** assigned to other duties.

H. R. Carpenter, chief engineer of the Missouri Pacific, the St. Louis Southwestern, the Louisiana & Arkansas and the Memphis, Dallas & Gulf, with headquarters at St. Louis, Mo., has had his jurisdiction extended over the Arkansas Central, the Natchez & Southern and the Natchez & Louisiana Railroad Transfer, with the same headquarters, effective October 15.

Our statement in the issue of October 11, page 683, to the effect that the jurisdiction of **H. Rettinghouse,** chief engineer of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. Paul, Minn., was extended over the St. Paul Union Depot Company, succeeding **W. C. Armstrong,** was incorrect in that Mr. Armstrong remains chief engineer of the St. Paul Union Depot corporation, which is now engaged in the construction of the Union station at that point. Mr. Rettinghouse has taken over only those duties of Mr. Armstrong incident to the operation of the existing station.

Purchasing

C. S. Filler has been appointed storekeeper of the Baltimore & Ohio Railroad, Eastern Lines, with office at Keyser, W. Va., vice **E. A. Workman,** transferred.

R. L. Irwin, purchasing agent of the Texas & Pacific and all other lines under the authority of **J. L. Lancaster,** federal manager, with headquarters at Dallas, Texas, also becomes purchasing agent of the Weatherford, Mineral Wells & Northwestern.

Charles A. How, purchasing agent of the Missouri Pacific, the St. Louis Southwestern, the Louisiana & Arkansas and the Memphis, Dallas & Gulf, with headquarters at St. Louis, Mo., has had his jurisdiction extended over the Arkansas Central, the Natchez & Southern, and the Natchez & Louisiana Railroad Transfer, with the same headquarters, effective October 15.

The following officers have been appointed on the Baltimore & Ohio, Eastern Lines: **T. C. Hopkins,** assistant storekeeper, at Glenwood, Pa., appointed storekeeper, with the same headquarters, vice **T. H. Barker,** assigned to other duties; **T. B. Cushing,** appointed assistant storekeeper, at Foxburg, Pa., vice **A. D. Rosier,** assigned to other duties, and **L. A. Abear,** appointed assistant storekeeper, at Allegheny, Pa., vice **S. W. Adams,** assigned to other duties.

J. H. Clemmitt, whose appointment as purchasing agent of the Norfolk & Western, with office at Roanoke, Va., was announced in the *Railway Age* of October 11, was born November 20, 1881, in Richmond, Va. He was educated in the public schools and entered the service of the Norfolk & Western in November, 1896, filling various positions in the office of the purchasing agent. His entire railroad and business experience has been with the Norfolk & Western. On December 1, 1913, he was appointed chief clerk, which position he held until his recent appointment as purchasing agent as above noted.

Corporate

Executive, Financial, Legal and Accounting

J. F. Aitchison, special auditor of the Grand Trunk and Grand Trunk Pacific, has been appointed acting auditor of disbursements on the Grand Trunk and the Grand Trunk Pacific.

J. M. Rosevear, auditor of disbursements of the Grand Trunk and the Grand Trunk Pacific, with office at Montreal, Que., has been appointed general auditor, with the same headquarters.

W. D. Robb, vice-president of the Grand Trunk, with office at Montreal, Que., has assumed the duties of **U. E. Gillen,** vice-president in charge of transportation, who is absent on account of illness.

C. B. Ferry, vice-president and assistant secretary of the Chicago, Milwaukee & St. Paul, with headquarters at New York, has also been appointed corporate treasurer, with the same headquarters, succeeding **A. G. Loomis,** who is now federal treasurer.

D'Alton C. Coleman, assistant general manager of the Canadian Pacific Western Lines, has been appointed vice-president of the western lines, with headquarters at Winnipeg, Man., succeeding **Grant Hall,** promoted to vice-president in charge of operation of the Canadian Pacific system, with headquarters at Montreal, Que.

T. D. Heed, receiver of the Chicago & Eastern Illinois, with headquarters at Chicago, has been elected president, succeeding **W. J. Jackson,** who is now federal manager of that road. **Alvin W. Krech,** chairman of the board of directors of the Western Pacific and president of the Carolina & Yadkin River, with headquarters at New York, has been elected vice-president of the Chicago & Eastern Illinois, with headquarters at New York. **W. H. Lyford,** general counsel of the Chicago & Eastern Illinois, with headquarters at Chicago, has also been elected vice-president, with the same headquarters. **F. R. Austin,** assistant auditor, has been appointed secretary and auditor, with headquarters at Chicago, succeeding **H. J. Cronin. R. R. Hunter** has been appointed assistant secretary, with headquarters at New York.

Operating

C. H. Towle, assistant superintendent of the Canadian Pacific, with office at Sudbury, Ont., has been appointed assistant superintendent, Smith Falls Division.

J. K. Savage, superintendent of the Canadian Pacific, Ontario district, has been appointed assistant general superintendent, with headquarters at Toronto, Ont.

R. A. Sewell has been appointed assistant superintendent, Montreal Terminals Division of the Canadian Pacific, with office at Montreal, Que., vice **R. W. Scott,** promoted.

T. A. Wilson, assistant superintendent of the Canadian Pacific, with office at Smiths Falls, Ont., has been appointed superintendent, Smiths Falls division, vice **J. K. Savage,** promoted.

R. W. Scott, assistant superintendent of the Canadian Pacific, with office at Montreal, Que., has been appointed superintendent of the Trenton Division, with office at Toronto, Ont., in place of **W. J. Uren,** transferred.

Charles Murphy, general superintendent of the Manitoba district of the Canadian Pacific, has been promoted to general manager of the western lines, with headquarters at Winnipeg, Man., succeeding D. C. Coleman, promoted. **A. E. Stevens,** general superintendent of the Saskatchewan district, has been transferred to Winnipeg as general superintendent of the Manitoba district in place of Mr. Murphy. **W. A. Mather,** assistant general superintendent of the British Columbia district, has been promoted to general superintendent of the Saskatchewan district, with headquarters at Moose Jaw, Sask., to succeed Mr. Stevens. **C. A. Cotterell,** superintendent of the Medicine Hat division, has been promoted to assistant general superintendent of the British Columbia division, with headquarters at Vancouver, B. C., succeeding Mr. Mather.

Engineering and Rolling Stock

C. Gribbon has been appointed division master mechanic of the Canadian Pacific, London division, with office at London, Ont., in place of **A. Maynes,** transferred.

George W. Hand, valuation engineer of the Chicago & North Western, has been appointed corporate engineer of the same road and the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at Chicago, effective November 1.

Obituary

Charles L. Thomas, chairman of the Cincinnati district freight traffic committee of the United States Railroad Administration and traffic manager of the Baltimore & Ohio, Western lines, with headquarters at Cincinnati, Ohio, died in that city on October 15. Mr. Thomas was born at Jersey City, N. J., on May 3, 1864, and began railway work in 1881 with the Chicago & Atlantic (now a part of the Erie) as bookkeeper and assistant paymaster in the construction department. He filled various minor positions in the freight department from May, 1883, to October, 1890, when he was made division freight agent. He was then successively assistant general freight agent and general freight agent until July, 1896, when he became general freight agent of the Erie lines west of Salamanca and Buffalo. In November, 1905, he was promoted to assistant freight traffic manager of those lines and the Cincinnati, Hamilton & Dayton, with headquarters at Cincinnati, Ohio. In December of that year he became general traffic manager of the Cincinnati, Hamilton & Dayton, and in March, 1911, was appointed freight traffic manager of that road and the Baltimore & Ohio Southwestern. He was also appointed general traffic assistant of the Baltimore & Ohio in January, 1915. In October, 1916, he became freight traffic manager of the Baltimore & Ohio at Cincinnati, Ohio, and in July of this year he was appointed traffic manager of the western lines, with headquarters at Cincinnati. When the Cincinnati district traffic committee was appointed in July, Mr. Thomas was made chairman of that committee also.

Robert M. Dixon, president of the Safety Car Heating & Lighting Company, and of the Pintsch Compressing Company, New York, died at his home in East Orange, N. J., October 16, of heart disease. Mr. Dixon had been associated with the Safety Car Heating & Lighting Company or one of its predecessors since 1883. He was born September 19, 1860, at East Orange, N. J., in the house where he lived at the time of his death. He was educated in the public schools and graduated from Stevens Institute of Technology in the class of 1881 with the degree of mechanical engineer. For two years he was employed with the Delaware Bridge Company, of Trenton, N. J., leaving that company in March, 1883, to become assistant engineer of the Pintsch Lighting Company, which was merged with the Safety Car Heating & Lighting Company in 1887, with Mr. Dixon as chief engineer. He was elected vice-president of the company on January 15, 1902, and became its president in May, 1907, which office he held at the time of his death. Mr. Dixon spent the greater part of his life in the field of railway car heating and lighting, being identified with the first application of steam from the locomotive for heating railway passenger cars and with the development of gas and electricity for lighting railway cars. He was also active in the field of harbor and coast lighting. Mr. Dixon was a member of the American Society of Mechanical Engineers for 35 years. He was a trustee and a member of the finance committee of the United Engineering Societies from 1917 until the time of his death. He was also active as an executive officer of the New York Railroad Club from its early days. He served as treasurer since 1903, prior to which he was chairman of the financial committee. He was a member of the executive committee of the club for 35 years.

R. M. Dixon